CITY OF OREGON CITY
CITY COMMISSION REGULAR MEETING
AGENDA

Commission Chambers, Libke Public Safety Facility, 1234 Linn Ave, Oregon City
Wednesday, April 19, 2023 at 7:00 PM

EXECUTIVE SESSION OF THE CITY COMMISSION:

The Executive Session will begin after the adjournment of the City Commission Regular Meeting.

- Pursuant to ORS 192.660(2)(e): to conduct deliberations with persons designated by the governing body to negotiate real property transactions.

REGULAR MEETING OF THE CITY COMMISSION

Ways to participate in this public meeting:

- *Attend in person, location listed above*
- *Register to provide electronic testimony (email recorderteam@orcity.org or call 503-496-1509 by 3:00 PM on the day of the meeting to register)*
- *Email recorderteam@orcity.org (deadline to submit written testimony via email is 3:00 PM on the day of the meeting)*
- *Mail to City of Oregon City, Attn: City Recorder, P.O. Box 3040, Oregon City, OR 97045*

1. CONVENE MEETING AND ROLL CALL

2. FLAG SALUTE

3. CEREMONIES AND PROCLAMATIONS

4. CITIZEN COMMENTS

Citizens are allowed up to 3 minutes to present information relevant to the City but not listed as an item on the agenda. Prior to speaking, citizens shall complete a comment form and deliver it to the City Recorder. The City Commission does not generally engage in dialog with those making comments but may refer the issue to the City Manager. Complaints shall first be addressed at the department level prior to addressing the City Commission.

5. PRESENTATIONS

5a. Clackamas Fire District No. 1 Presentation for the Emergency Services Levy

5b. 2022 - 2023 Community Satisfaction Survey

6. ADOPTION OF THE AGENDA

7. CONSENT AGENDA

This section allows the City Commission to consider routine items that require no discussion and can be approved in one comprehensive motion. An item may only be discussed if it is pulled from the consent agenda.

7a. Resolution No. 23-06, Adoption of Street Design Standards

7b. Personal Services Agreement with DeSantis Landscaping, Inc. for Landscaping Maintenance Services - Street Division (PS 20-013)

7c. MOXFIVE Contract for Network Restoration

7d. Microsoft 3 Year Enterprise Agreement

7e. Removal of Heritage Tree Designation for Dead Austrian Pine Tree at Swimming Pool, 1211 Jackson Street

8. PUBLIC HEARINGS

9. GENERAL BUSINESS

9a. Resolution No. 23-07, Adopting New Parking Meter Fees in Downtown Zones

9b. First Reading of Ordinance 23-1004, the 2022-23 Street Tree Minor Code Amendments

9c. I-205 Toll Project Environmental Assessment Discussion

10. COMMUNICATIONS

City Manager

Commissioners

Mayor

11. ADJOURNMENT

PUBLIC COMMENT GUIDELINES

Complete a Comment Card prior to the meeting and submit it to the City Recorder. When the Mayor/Chair calls your name, proceed to the speaker table, and state your name and city of residence into the microphone. Each speaker is given three (3) minutes to speak. To assist in tracking your speaking time, refer to the timer on the table.

As a general practice, the City Commission does not engage in discussion with those making comments.

Electronic presentations are permitted but shall be delivered to the City Recorder 48 hours in advance of the meeting.

ADA NOTICE

The location is ADA accessible. Hearing devices may be requested from the City Recorder prior to the meeting. Individuals requiring other assistance must make their request known 48 hours preceding the meeting by contacting the City Recorder's Office at 503-657-0891.

Agenda Posted at City Hall, Pioneer Community Center, Library, City Website.

Video Streaming & Broadcasts: The meeting is streamed live on the Oregon City's website at www.orcity.org and available on demand following the meeting. The meeting can be viewed on Willamette Falls Television channel 28 for Oregon City area residents as a rebroadcast. Please contact WFMC at 503-650-0275 for a programming schedule.

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: City Manager Tony Konkol

SUBJECT:

2022 - 2023 Community Satisfaction Survey

EXECUTIVE SUMMARY:

The 2022/23 Community Satisfaction Survey is the continuation of the City's commitment to solicit resident feedback biannually. This is the third such survey conducted by the City since 2018. The information is used to help craft the Commission's goals to ensure that the City's priorities continue to match the needs and desires of residents. The information provided will be used to improve existing services and help the City better understand the evolving needs of residents of Oregon City.

BACKGROUND:

The Community Satisfaction Survey is administered through the ETC Institute to ensure statistically valid results and equal representation throughout neighborhoods in Oregon City. ETC works nationally with local governments to gather statistically valid data and representative input from residents on a wide variety of topics and through this work have developed standardized questions to help benchmark Oregon City's performance and compare amongst other cities of similar size regionally and nationally.

The survey is distributed every other year to determine the perceived quality of Oregon City's service delivery and measure trends in Parks and Recreation, Public Safety, Communication, Code Enforcement, Transportation and Infrastructure, Library Services, and Water Services. This survey also provides an equitable and inclusive means to reach out to community members whose opinions might not otherwise be heard. It provides a voice for those who do not or cannot come to public hearings or actively participate in local government, offering them another method to share their experiences and help prioritize issues of importance.

The survey instrument is vetted by the ETC Institute before it is administered to ensure the City is not influencing answers and to keep the survey under 7 pages and 15 minutes, on average, to take.

Changes made from 2020 to 2022

2022 – Questions 6 and 7 removed and replaced

Question 6: “What makes Oregon City Special?” was replaced with “How willing would you be to pay additional taxes or fees to acquire, develop, and maintain the types of parks, recreation and trail facilities that are most important to your household?”

Question 7: “What about Oregon City would you change in the future?” was replaced with a two-option question: “How satisfied are you with ‘The City creating a diverse, inclusive, and fair community’ and ‘The City helps residents feel connected and integrated into the community.’”

2022 - Question 25a was removed

Question 25a, which was designed to gauge community support for increasing indebtedness in the form of loans or bonds to improve water infrastructure, was removed.

2020

2020 ADDED - What makes Oregon City special?

2020 ADDED - What about Oregon City would you like to change in the future?

2020 ADDED - Oregon City has great water supply from the Clackamas River and an aging but effective water distribution system. Within 7 years, major investment is required to ensure the City can continue to provide a sufficient supply of water on a reliable basis to meet the needs of our community. The City Charter requires voter support to increase rates greater than 3% or to increase indebtedness (loans or bonds). What would be your preferred way to pay for system improvements:

- Underfund system needs by limiting water rate increases to 3% annually, resulting in mandatory water curtailment and reduced system reliability
- Fully fund needed system improvements by secure bonding or loan (taking on debt), and limiting rate increases to no more than 5% annually
- Fully fund needed system improvements without debt and raise water rates 5% or more annually
- Fully fund needed system improvements by adding a property tax and limiting water rate increases to 3% annually

2020 ADDED - Q. Water Quality. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following code enforcement items.

2018 – Question 6, 7, and 25 Removed

2018 Q6 – REMOVED How willing would you be to pay additional taxes or fees to acquire, develop, and maintain the types of parks, recreation, and trail facilities that are most important to your household?

2018 Q7 – REMOVED How would you vote in a bond election to fund the acquisition, development, and maintenance of the types of parks, recreation, and trail facilities that are most important to your household?

2018 Q25 – REMOVED Community amenities provided by the city can enhance the quality of life in Oregon City. If you could identify ONE new community amenity that could be provided by the city, what would it be?

BUDGET IMPACT:

Amount:	$16,500
FY(s):	2022-2023
Funding Source(s):	General Fund

2023 City of Oregon City Community Survey

Findings Report

Presented to the City of Oregon City, Oregon

February 2023

ETC INSTITUTE

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Executive Summary

2023 City of Oregon City Community Survey
Executive Summary

Purpose

ETC Institute administered a survey to residents of the City of Oregon City in January and February 2023. The purpose of the survey was to help ensure that the City's priorities continue to match the needs and desires of residents. The information provided will be used to improve existing services and help the City better understand the evolving needs of residents. This is the third survey ETC Institute has administered for Oregon City; the first was conducted in 2018.

The seven-page survey, cover letter and postage-paid return envelope were mailed to a random sample of households in the City of Oregon City. The cover letter explained the purpose of the survey and encouraged residents to either return their survey by mail or complete the survey online. At the end of the online survey, residents were asked to enter their home address; this was done to ensure that only responses from residents who were part of the random sample were included in the final survey database.

Ten days after the surveys were mailed, ETC Institute sent emails to the households that received the survey to encourage participation. The emails contained a link to the online version of the survey to make it easy for residents to complete the survey. To prevent people who were not residents of Oregon City from participating, everyone who completed the survey online was required to enter their home address prior to submitting the survey. ETC Institute then matched the addresses that were entered online with the addresses that were originally selected for the random sample. If the address from a survey completed online did not match one of the addresses selected for the sample, the online survey was not counted.

The goal was to obtain completed surveys from at least 300 residents. The goal was met, with a total of 321 residents completing the survey. The overall results for the sample of 321 households have a precision of at least +/-5.4% at the 95% level of confidence.

The percentage of "don't know" responses has been excluded from many of the graphs shown in this report to facilitate valid comparisons of the results from Oregon City with the results from other communities in ETC Institute's *DirectionFinder®* database. Since the number of "don't know" responses often reflect the utilization and awareness of City services, the percentage of "don't know" responses have been provided in the tabular data section of this report. When the "don't know" responses have been excluded, the text of this report will indicate that the responses have been excluded with the phrase "*who had an opinion.*"

2023 City of Oregon City Community Survey
Executive Summary

This report contains:

- An executive summary of the methodology for administering the survey and major findings,
- charts showing the overall results for most questions on the survey, including comparisons to results from the 2020 and 2018 surveys,
- benchmarking data that show how the results for Oregon City compare to other communities,
- Importance-Satisfaction analysis: this analysis was done to determine priority actions for the City to address based upon the survey results,
- tables that show the results of the random sample for each question on the survey,
- a copy of the survey instrument.

Overall Satisfaction with Major Categories of City Services

The major categories of City services that had the highest levels of satisfaction, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: the overall quality of the City's public library services (81%), the overall quality of police services (76%), the overall quality of City sewer services (73%), and the overall quality of City water utilities (71%). The major categories of City services that respondent households indicated should receive the most emphasis over the next two years were: the overall maintenance of City streets (58%), the overall quality of police services (33%), the overall quality of City parks, trails, and open space (33%).

Overall Satisfaction with Perceptions of the City

The highest levels of satisfaction with items that influence perceptions of the City, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: the overall quality of services provided by the City (65%), the overall feeling of safety in the City (58%), the overall image of the City (52%), and the availability of training or educational opportunities (42%).

Ratings of Oregon City

The highest overall ratings of Oregon City, based upon the combined percentage of "excellent" and "good" responses among residents *who had an opinion*, were: as a place to live (86%), overall quality of life in the City (78%), as a place to raise children (76%), and a place to connect & interact with neighbors (59%).

2023 City of Oregon City Community Survey
Executive Summary

Satisfaction with Specific City Services

Parks and Recreation. The highest levels of satisfaction with parks and recreation services, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: proximity of parks to home (76%), the quality of facilities (70%), the appearance and maintenance of existing City parks (67%). The parks and recreation services that should receive the most emphasis over the next two years, based upon the sum of respondents' top two choices, were: appearance and maintenance of existing City parks (29%), quality of facilities (26%), and quantity of City trails (20%).

Public Safety. The highest levels of satisfaction with public safety services, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: the visibility of police in the community (70%), how quickly police respond to emergencies (59%), enforcement of local traffic laws (53%), and the City's overall efforts to prevent crime (52%). The public safety services that should receive the most emphasis over the next two years, based upon the sum of the respondents' top two choices, were: response to issues with transients (58%), the City's overall efforts to prevent crime (29%), and response to drug control (21%).

City Communication. The highest levels of satisfaction with City communication, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: the availability of information about City programs and services (41%) and the overall quality of the City's website (34%).

- The top four sources that respondent households have used to receive news and information about City programs, services and events, were: "Trail News" quarterly publication (68%), social media (59%), TV local news (36%), and Nextdoor (35%). The sources from which respondents indicated they would *most prefer* to receive their information were: "Trail News" quarterly publication (41%) and social media (36%).

- Based on the sum of their top two choices, the level of frequency that respondent households would like to receive information from the City was monthly (77%).

- The types of information that respondent households indicated they would like to receive from the City were: public safety (72%), special events (72%), and public works (66%).

Code Enforcement. The highest levels of satisfaction with City code enforcement, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: enforcing codes designed to protect public safety (40%) and enforcing sign regulation (34%). The two code enforcement items that respondents indicated should receive the most emphasis over the next two years were: enforcing cleanup of litter & debris on private property (66%) and enforcing codes designed to protect public safety (61%).

2023 City of Oregon City Community Survey
Executive Summary

Transportation and Infrastructure. The highest levels of satisfaction with City street maintenance/service items, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: snow and ice response on major City streets (70%), adequacy of City street lighting in neighborhoods (67%), and availability of safe pedestrian ways in neighborhoods (53%). The two transportation and infrastructure services that respondents indicated should receive the most emphasis over the next two years were: the maintenance of major City streets (45%) and the maintenance of neighborhood streets (33%).

Public Library. The highest levels of satisfaction with the City's public library services, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: selection of physical resources available (78%), access to computers and library Wi-Fi (69%), and selection of digital resources available online (68%). The library services that respondents indicated should receive the most emphasis over the next two years, based upon the sum of their top two choices, were: selection of physical resources available (20%), events for seniors (19%), and selection of digital resources available online (18%).

- Thirty-six percent (36%) of respondent households indicated they receive their information about the library from "Trail News".

Customer Service. Thirty-seven percent (37%) of respondents indicated they have called, emailed, or visited the City with a question, problem, or complaint during the past year. Of those who contacted the City, 37% indicated it was "very easy," 40% indicated it was "somewhat easy," 12% indicated it was "difficult," and 9% indicated it was "very difficult" to contact the person they needed to reach. Of the 37% of respondents who contacted the City during the past year, 36% contacted Code Enforcement, 30% contacted Building and Planning, and 25% contacted the Police. Eighty-seven percent (87%) of respondents who contacted the City indicated that City employees were always (60%) or usually (27%) courteous & polite.

Water Quality. The highest levels of satisfaction with the City's water quality, based upon the combined percentage of "very satisfied" and "satisfied" responses among residents *who had an opinion*, were: reliability of water service (90%), water clarity (86%), and water pressure (81%).

Additional Findings

- Respondent households were asked their willingness to pay additional taxes/fees to acquire, develop, and maintain parks, recreation, and trail facilities. Nine percent (9%) indicated they were "very willing," 25% were "willing," 22% were "neutral," 21% were "not willing," and 23% were "not at all willing."

- The capital investment items that are priorities to respondent households, based upon the sum of their top five choices, are: road maintenance/pavement preservation (71%) and traffic congestion relief (50%).

2023 City of Oregon City Community Survey
Executive Summary

- The highest levels of change in the expectation of services provided by the City, based upon the combined percentage of "much higher" and "a little higher" responses among residents *who had an opinion*, were: transportation facilities & programs (70%), law enforcement (59%), and parks, trails, & open space (54%). Forty percent (40%) of respondent households indicated they would be willing to pay more in taxes or fees to support an increase in the service level.

- The items that respondents, *who had an opinion,* indicated were "much too slow" or "too slow" with regard to the current pace of development were: housing options for aging population (70%) and technology and other industry (60%). Respondents felt the pace of development was "too fast" or "much too fast" for townhomes/row houses (45%) and apartments (41%).

2023 City of Oregon City Community Survey
Executive Summary

How the City of Oregon City Compares to Other Communities Nationally

Satisfaction ratings for Oregon City **rated the same as or higher than the U.S. average in 17 of the 37 areas** that were assessed. The City rated significantly higher than the U.S. average (difference of 5% or more) in 13 of these areas. Listed below are the comparisons between Oregon City and the U.S. average:

Service	Oregon City	U.S.	Difference	Category
As a place to live	86%	50%	36%	Overall Ratings of the City
Overall quality of customer service from City employees	62%	41%	21%	Major Categories of City Services
Overall quality of police services	76%	55%	21%	Major Categories of City Services
Overall quality of City sewer services	73%	55%	18%	Major Categories of City Services
Overall quality of City water utilities	71%	54%	17%	Major Categories of City Services
Overall quality of City's public library services	81%	66%	15%	Major Categories of City Services
Visibility of police in the community	70%	55%	15%	Public Safety
Overall quality of services provided by the City	64%	51%	13%	Perceptions of the Community
As a place to raise children	75%	62%	13%	Overall Ratings of the City
Accessibility of public transportation options	49%	38%	11%	Transportation and Infrastructure
Snow and ice response on major City streets	69%	60%	9%	Transportation and Infrastructure
Adequacy of City street lighting in neighborhoods	67%	60%	7%	Transportation and Infrastructure
Overall effectiveness of City communication with public	43%	38%	5%	Major Categories of City Services
Enforcement of local traffic laws	53%	51%	2%	Public Safety
The city's overall efforts to prevent crime	52%	50%	2%	Public Safety
How quickly police respond to emergencies	58%	58%	0%	Public Safety
Condition of neighborhood sidewalks	48%	48%	0%	Transportation and Infrastructure
Overall quality of the City's recreation programs	50%	51%	-1%	Major Categories of City Services
Overall value received for tax dollars & fees	33%	34%	-1%	Perceptions of the Community
Maintenance of neighborhood streets	50%	51%	-1%	Transportation and Infrastructure
As a place to work	56%	58%	-2%	Overall Ratings of the City
Overall maintenance of city streets	39%	41%	-2%	Major Categories of City Services
Overall image of the City	53%	55%	-2%	Perceptions of the Community
On-street bicycle infrastructure	40%	43%	-3%	Transportation and Infrastructure
Maintenance of major City streets	48%	51%	-3%	Transportation and Infrastructure
Overall enforcement of City codes and ordinances	37%	42%	-5%	Major Categories of City Services
Availability of info about City programs/services	41%	48%	-7%	Communication
Quality of content on social media	32%	40%	-8%	Communication
Overall quality of the City's website	33%	43%	-10%	Communication
Overall feeling of safety in the City	58%	68%	-10%	Perceptions of the Community
Enforcing sign regulation	34%	47%	-13%	Code Enforcement
How well City is supporting growth & development	27%	40%	-13%	Perceptions of the Community
Level of public involvement in decision making	18%	34%	-16%	Communication
Enforcing mowing/trimming of grass & weeds on private property	30%	47%	-17%	Code Enforcement
Enforcing cleanup of litter & debris on private property	29%	46%	-17%	Code Enforcement
Quality of sidewalks for people with mobility challenges	36%	53%	-17%	Transportation and Infrastructure
Timeliness of information provided by the City	24%	44%	-20%	Communication

2023 City of Oregon City Community Survey
Executive Summary

How the City of Oregon City Compares to Other Communities in the Region

Satisfaction ratings for Oregon City **rated the same as or higher than the Northwest regional average in 19 of the 37 areas** that were assessed. The City rated significantly higher than the Northwest Region (difference of 5% or more) in 11 of these areas. Listed below are the comparisons between Oregon City and the Northwest regional average:

Service	Oregon City	Northwest Region	Difference	Category
As a place to live	86%	52%	34%	Overall Ratings of the City
Overall quality of customer service from City employees	62%	41%	21%	Major Categories of City Services
As a place to raise children	75%	54%	21%	Overall Ratings of the City
Overall quality of services provided by the City	64%	45%	19%	Perceptions of the Community
Snow and ice response on major City streets	69%	51%	18%	Transportation and Infrastructure
Overall quality of police services	76%	60%	16%	Major Categories of City Services
Overall quality of City's public library services	81%	66%	15%	Major Categories of City Services
Visibility of police in the community	70%	56%	14%	Public Safety
Overall quality of City sewer services	73%	61%	12%	Major Categories of City Services
Adequacy of City street lighting in neighborhoods	67%	60%	7%	Transportation and Infrastructure
Overall quality of City water utilities	71%	66%	5%	Major Categories of City Services
Enforcement of local traffic laws	53%	49%	4%	Public Safety
The city's overall efforts to prevent crime	52%	50%	2%	Public Safety
Overall effectiveness of City communication with public	43%	42%	1%	Major Categories of City Services
Overall enforcement of City codes and ordinances	37%	36%	1%	Major Categories of City Services
Overall quality of the City's recreation programs	50%	50%	0%	Major Categories of City Services
Overall image of the City	53%	53%	0%	Perceptions of the Community
Availability of info about City programs/services	41%	41%	0%	Communication
Accessibility of public transportation options	49%	49%	0%	Transportation and Infrastructure
Maintenance of neighborhood streets	50%	51%	-1%	Transportation and Infrastructure
Maintenance of major City streets	48%	49%	-1%	Transportation and Infrastructure
As a place to work	56%	58%	-2%	Overall Ratings of the City
How well City is supporting growth & development	27%	29%	-2%	Perceptions of the Community
On-street bicycle infrastructure	40%	42%	-2%	Transportation and Infrastructure
Overall value received for tax dollars & fees	33%	36%	-3%	Perceptions of the Community
Condition of neighborhood sidewalks	48%	52%	-4%	Transportation and Infrastructure
Overall quality of the City's website	33%	39%	-6%	Communication
Overall feeling of safety in the City	58%	64%	-6%	Perceptions of the Community
Quality of content on social media	32%	40%	-8%	Communication
Level of public involvement in decision making	18%	28%	-10%	Communication
How quickly police respond to emergencies	58%	69%	-11%	Public Safety
Timeliness of information provided by the City	24%	35%	-11%	Communication
Enforcing sign regulation	34%	45%	-11%	Code Enforcement
Overall maintenance of city streets	39%	52%	-13%	Major Categories of City Services
Enforcing cleanup of litter & debris on private property	29%	44%	-15%	Code Enforcement
Quality of sidewalks for people with mobility challenges	36%	56%	-20%	Transportation and Infrastructure
Enforcing mowing/trimming of grass & weeds on private property	30%	51%	-21%	Code Enforcement

2023 City of Oregon City Community Survey
Executive Summary

Investment Priorities

Recommended Priorities for the Next Two Years. In order to help the City identify investment priorities for the next two years, ETC Institute conducted an Importance-Satisfaction (I-S) analysis. This analysis examined the importance residents placed on each City service and the level of satisfaction with each service. By identifying services of high importance and low satisfaction, the analysis identified which services will have the most impact on overall satisfaction with City services over the next two years. If the City wants to improve its overall satisfaction rating, the City should prioritize investments in services with the highest Importance Satisfaction (I-S) ratings. Details regarding the methodology for the analysis are provided in Section 3 of this report.

Overall Priorities for the City by Major Category. This analysis reviewed the importance of and satisfaction with major categories of City services. This analysis was conducted to help set the overall priorities for the City. Based on the results of this analysis, the major services that are recommended as the top priorities for investment over the next two years to raise the City's overall satisfaction rating are listed below:

- Overall maintenance of City streets (I-S=0.3509)
- Overall effectiveness of City economic development efforts (I-S=0.2309)
- Overall enforcement of City codes & ordinances (I-S=0.1560)
- Overall effectiveness of City communication with the public (I-S=0.1361)
- Overall quality of City parks, trails, and open space (I-S=0.1115)
- Overall quality of the City's recreation programs (I-S=0.1051)

The table on the following page shows the Importance-Satisfaction rating for all 13 major categories of City services that were assessed.

2023 City of Oregon City Community Survey
Executive Summary

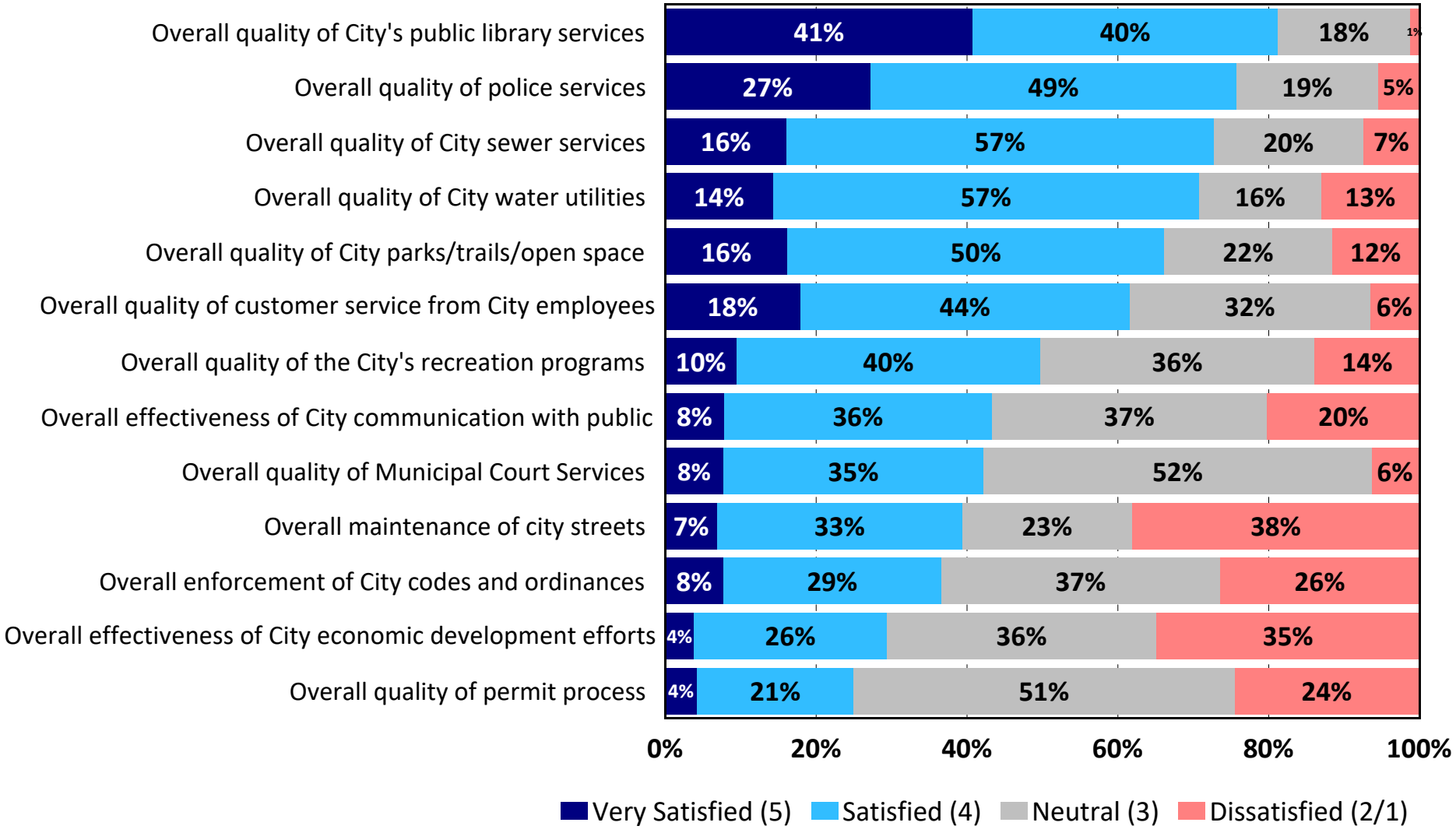
2023 Importance-Satisfaction Rating
Oregon City, OR
Major Categories of City Services

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
Very High Priority (IS >.20)						
Overall maintenance of city streets	58%	1	39%	10	0.3509	1
Overall effectiveness of City economic development efforts	33%	4	29%	12	0.2309	2
High Priority (IS .10-.20)						
Overall enforcement of City codes and ordinances	25%	5	37%	11	0.1560	3
Overall effectiveness of City communication with public	24%	6	43%	8	0.1361	4
Overall quality of City parks/trails/open space	33%	3	66%	5	0.1115	5
Overall quality of the City's recreation programs	21%	7	50%	7	0.1051	6
Medium Priority (IS <.10)						
Overall quality of permit process	11%	9	25%	13	0.0840	7
Overall quality of police services	33%	2	76%	2	0.0808	8
Overall quality of City water utilities	13%	8	71%	4	0.0380	9
Overall quality of customer service from City employees	5%	11	62%	6	0.0204	10
Overall quality of Municipal Court Services	3%	12	42%	9	0.0179	11
Overall quality of City sewer services	7%	10	73%	3	0.0177	12
Overall quality of City's public library services	2%	13	81%	1	0.0028	13

1 Charts and Graphs

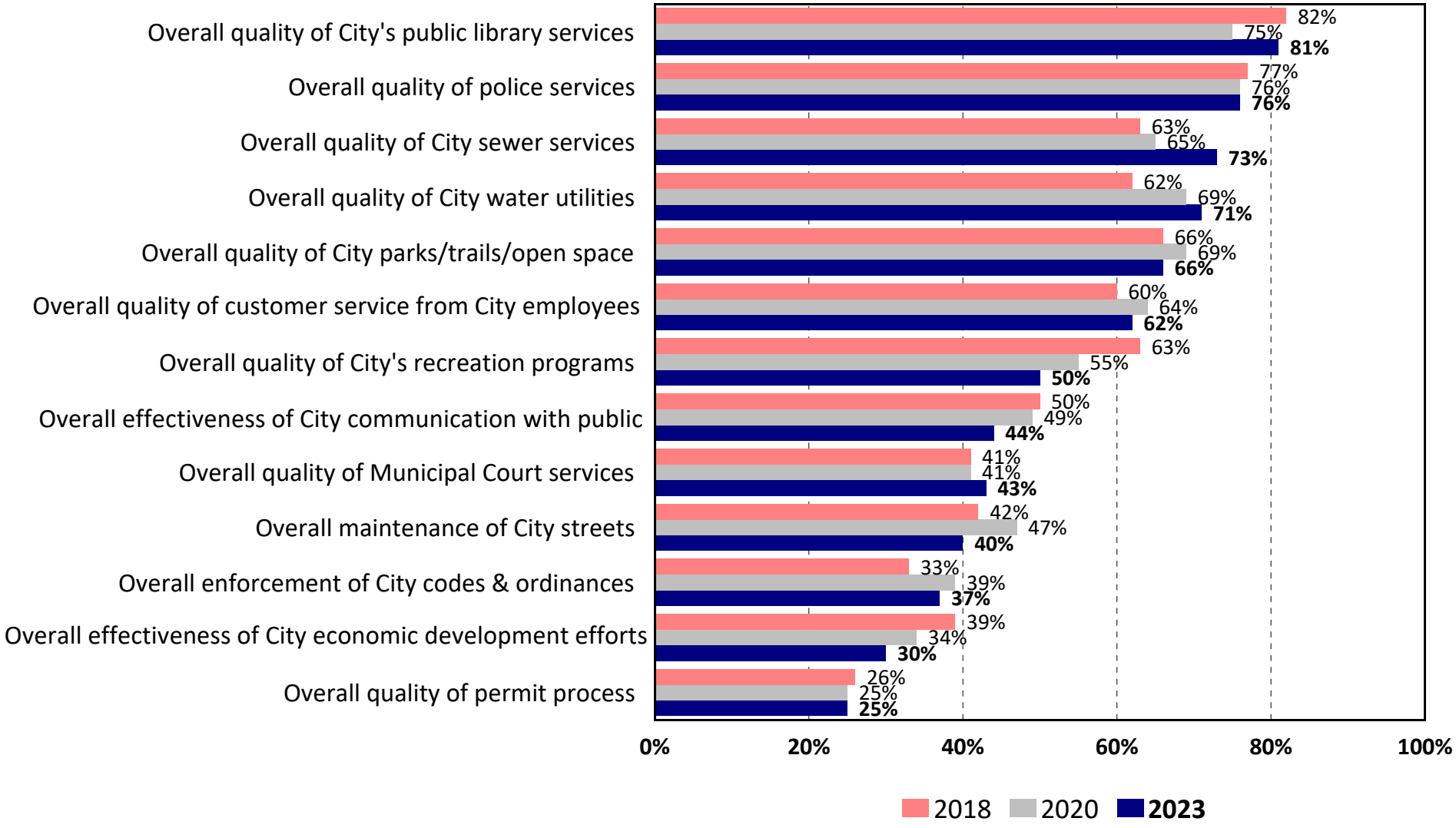
Q1. Overall Satisfaction With City Services by Major Category

by percentage of respondents (excluding don't knows)



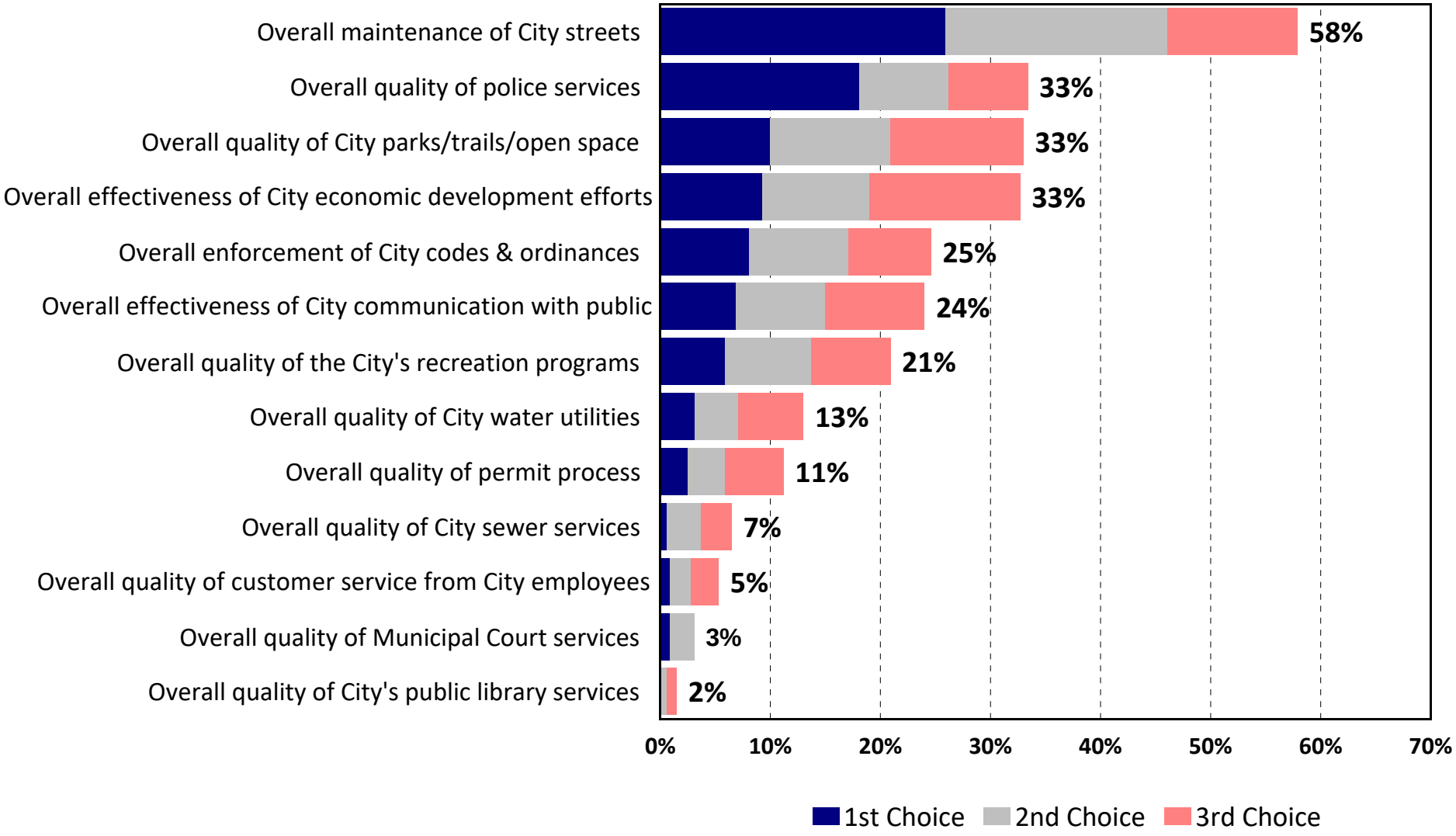
TRENDS: Overall Satisfaction with City Services by Major Category - *2018 to 2023*

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



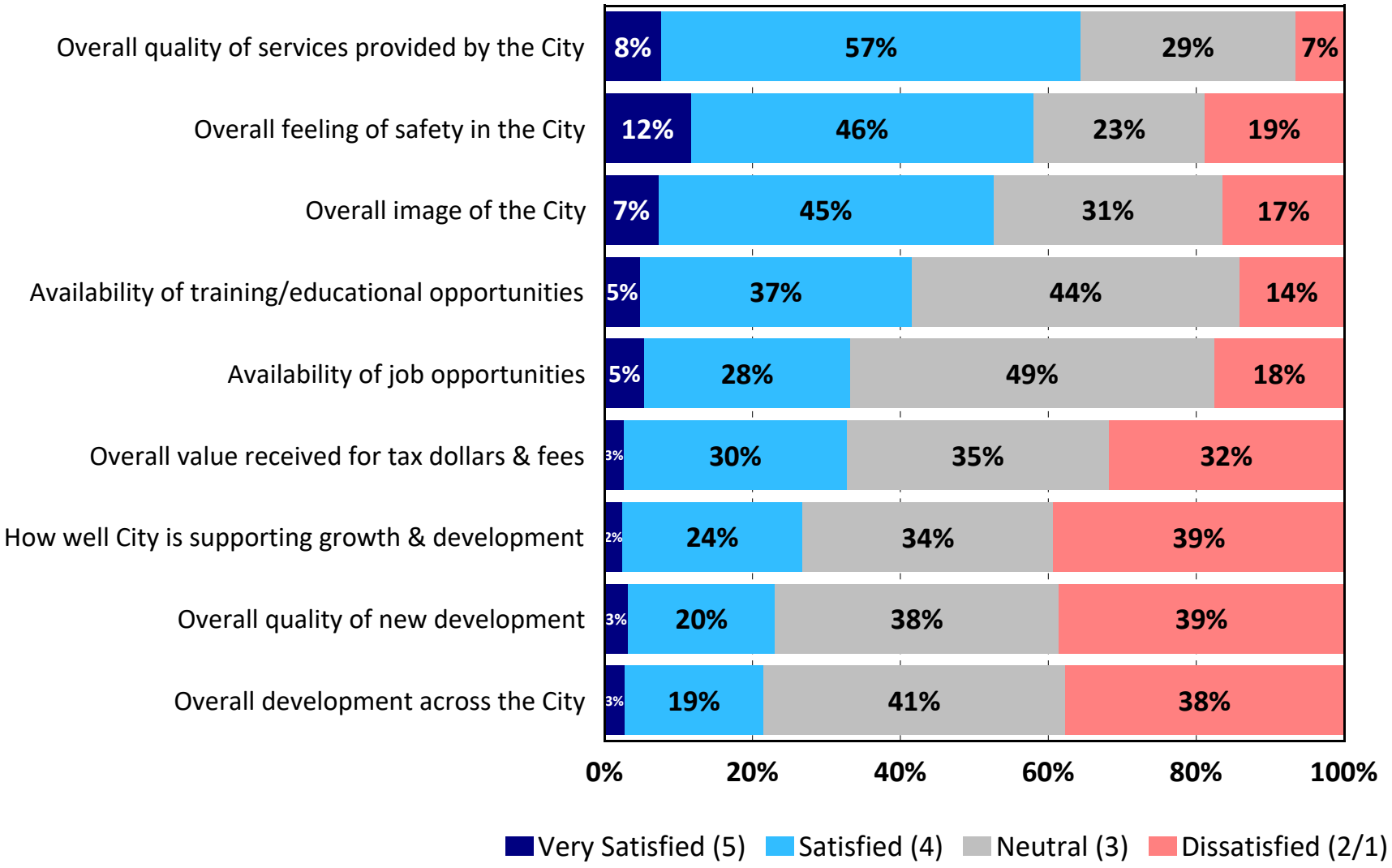
Q2. City Services That Should Receive the Most Emphasis from City Leaders Over the Next Two Years

by percentage of respondents who selected the item as one of their top three choices



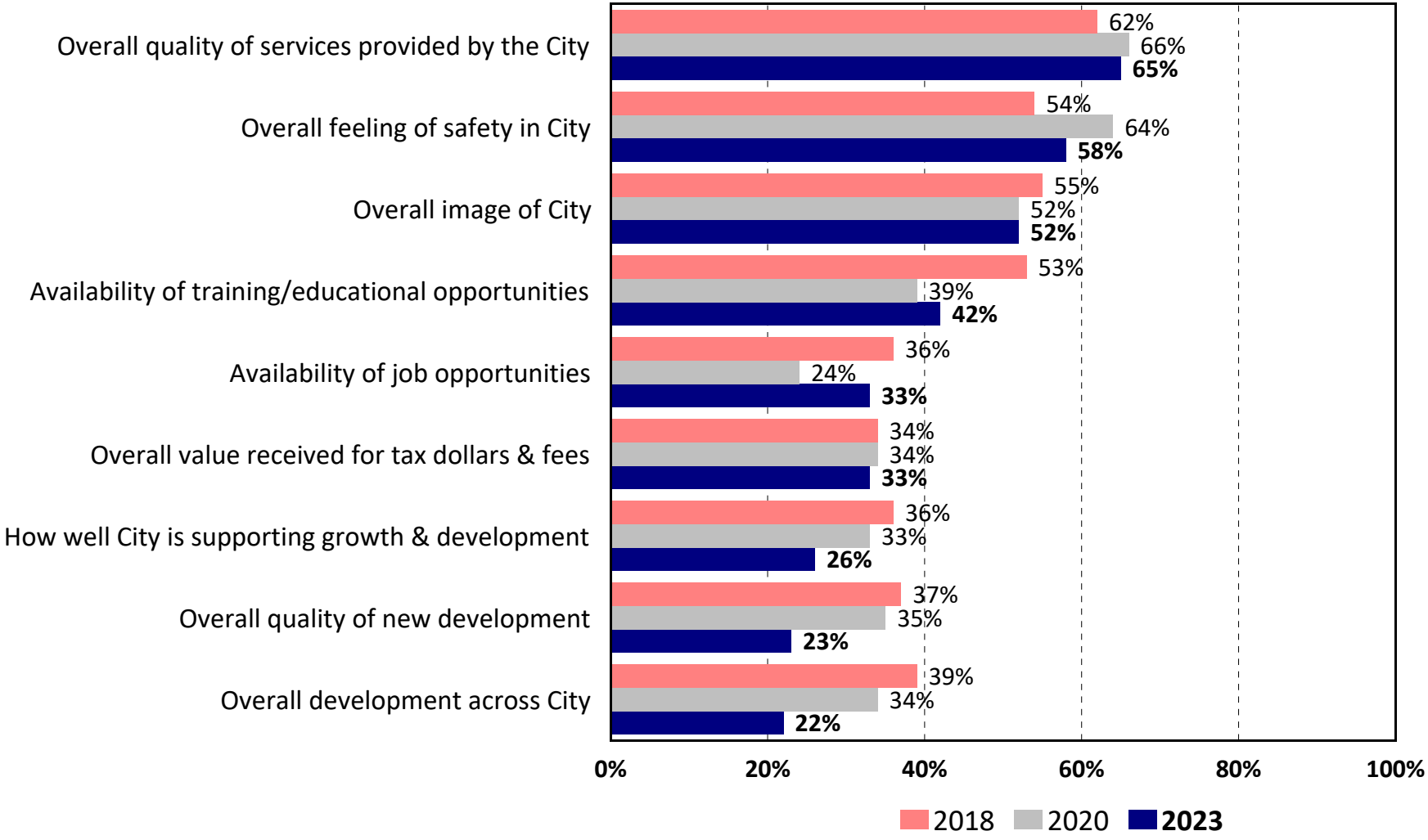
Q3. Satisfaction With Items That Influence Perceptions of the City

by percentage of respondents (excluding don't knows)



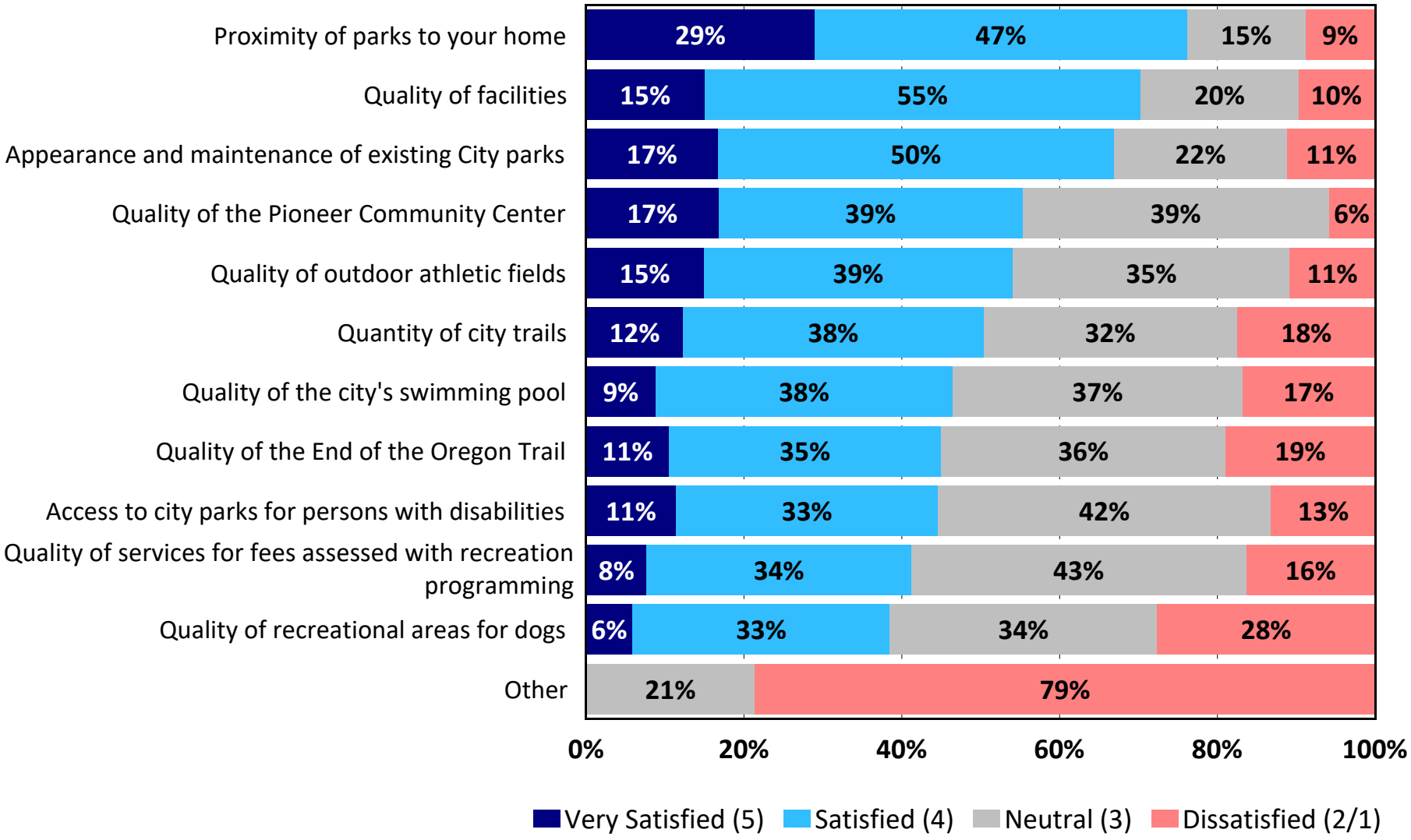
TRENDS: Satisfaction With Items That Influence Perceptions of the City - *2018 to 2023*

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



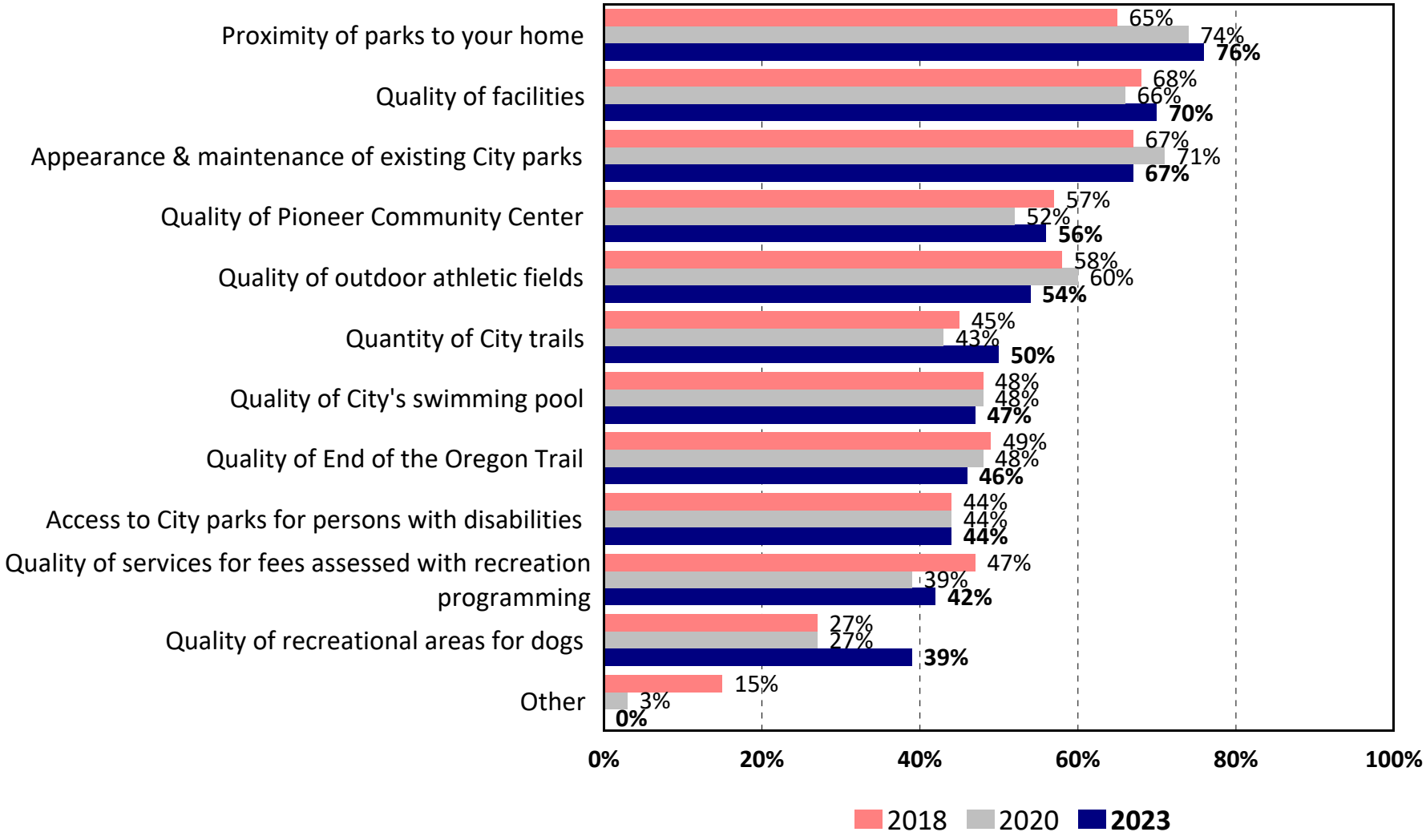
Q4. Satisfaction With Parks and Recreation Services

by percentage of respondents (excluding don't knows)



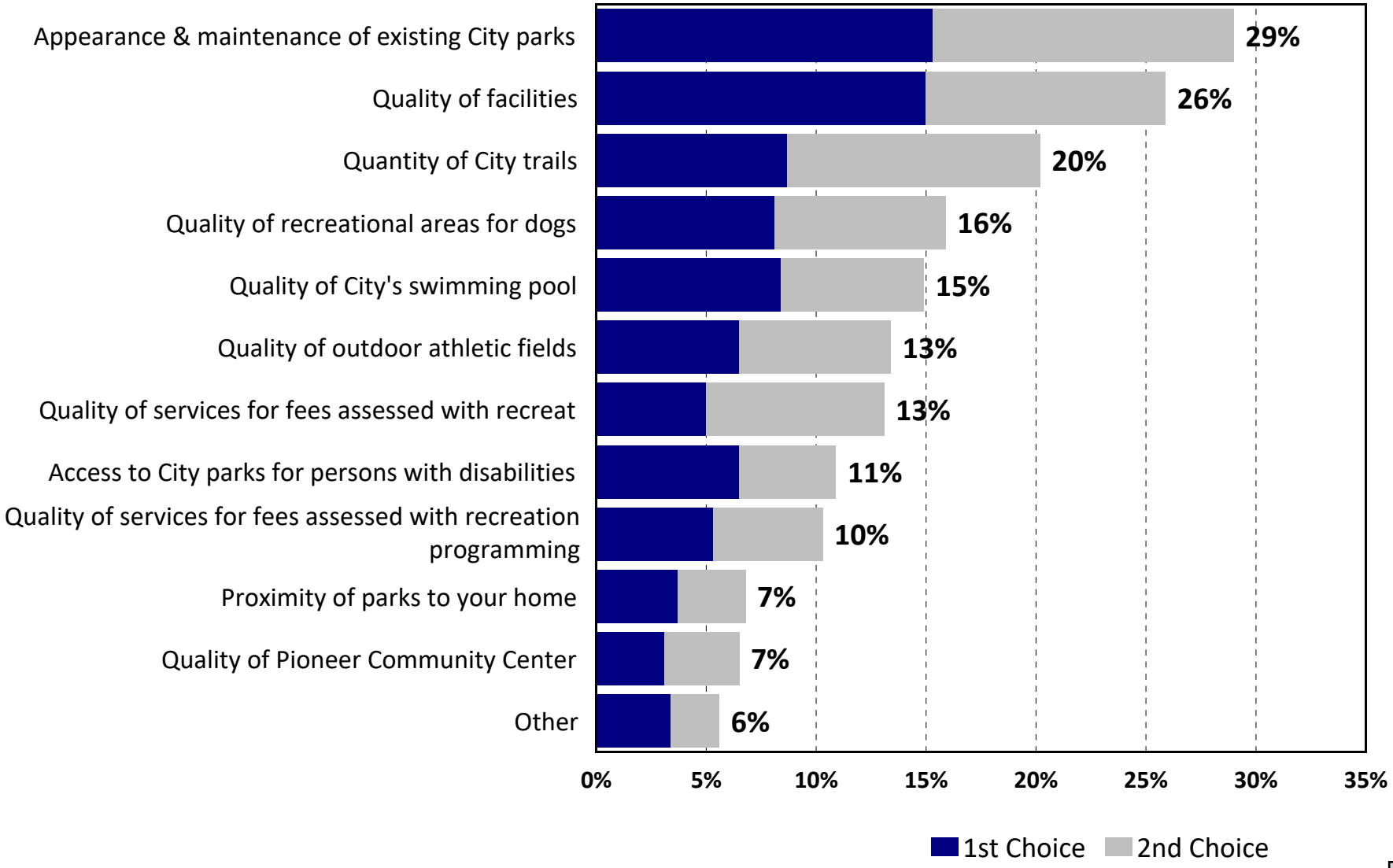
TRENDS: Satisfaction with Parks and Recreation Services *2018 to 2023*

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



Q5. Parks and Recreation Services That Should Receive the Most Emphasis from City Leaders Over the Next Two Years

by percentage of respondents who selected the item as one of their top two choices

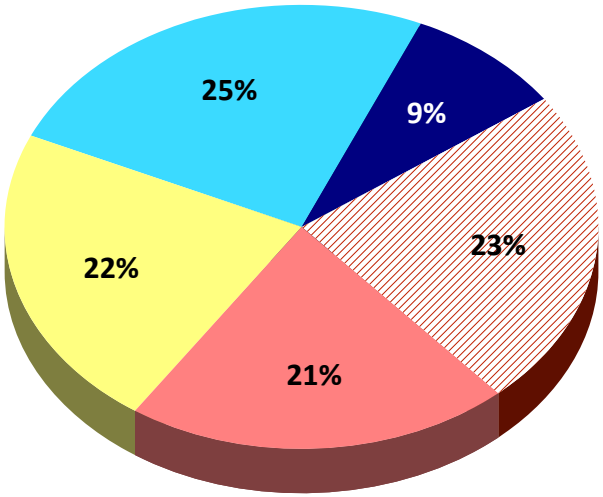


Q6. Willingness to Pay Additional Taxes or Fees to Acquire, Develop, and Maintain Parks, Recreation, and Trail Facilities

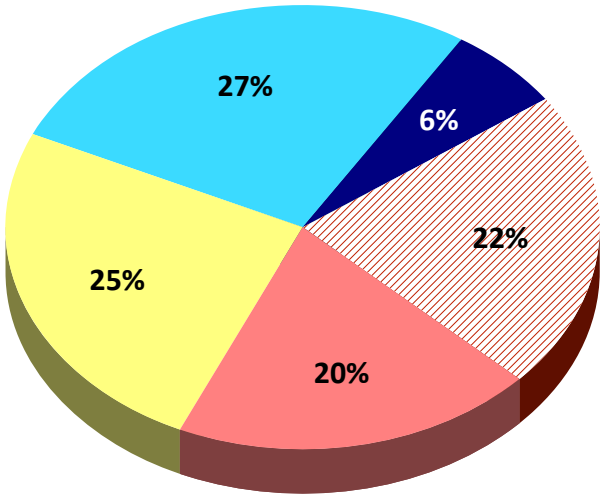
by percentage of respondents (excluding don't knows)

TRENDS

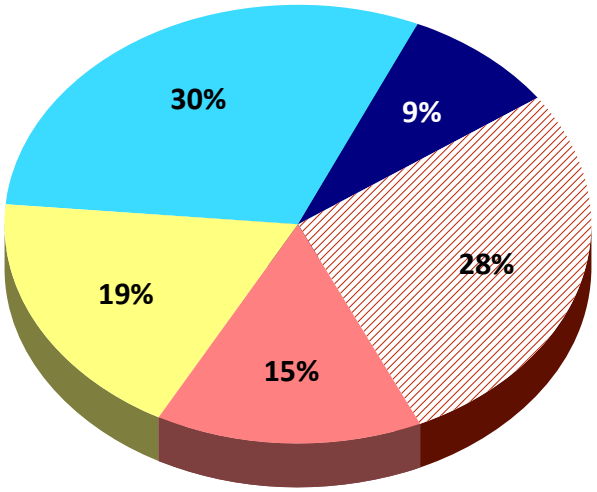
2023



2018



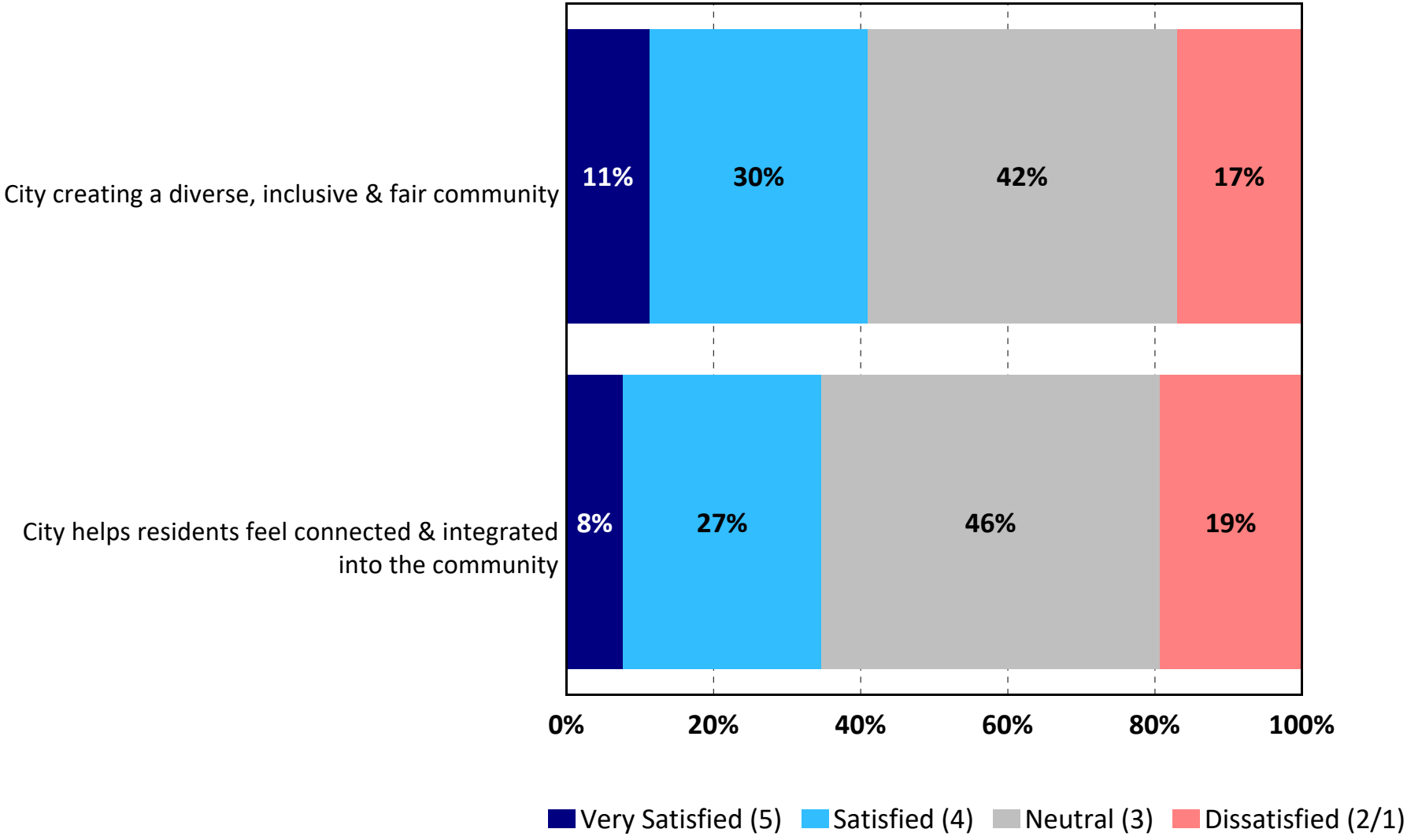
2020



Very willing | Willing | Neutral | Not willing | Not at all willing

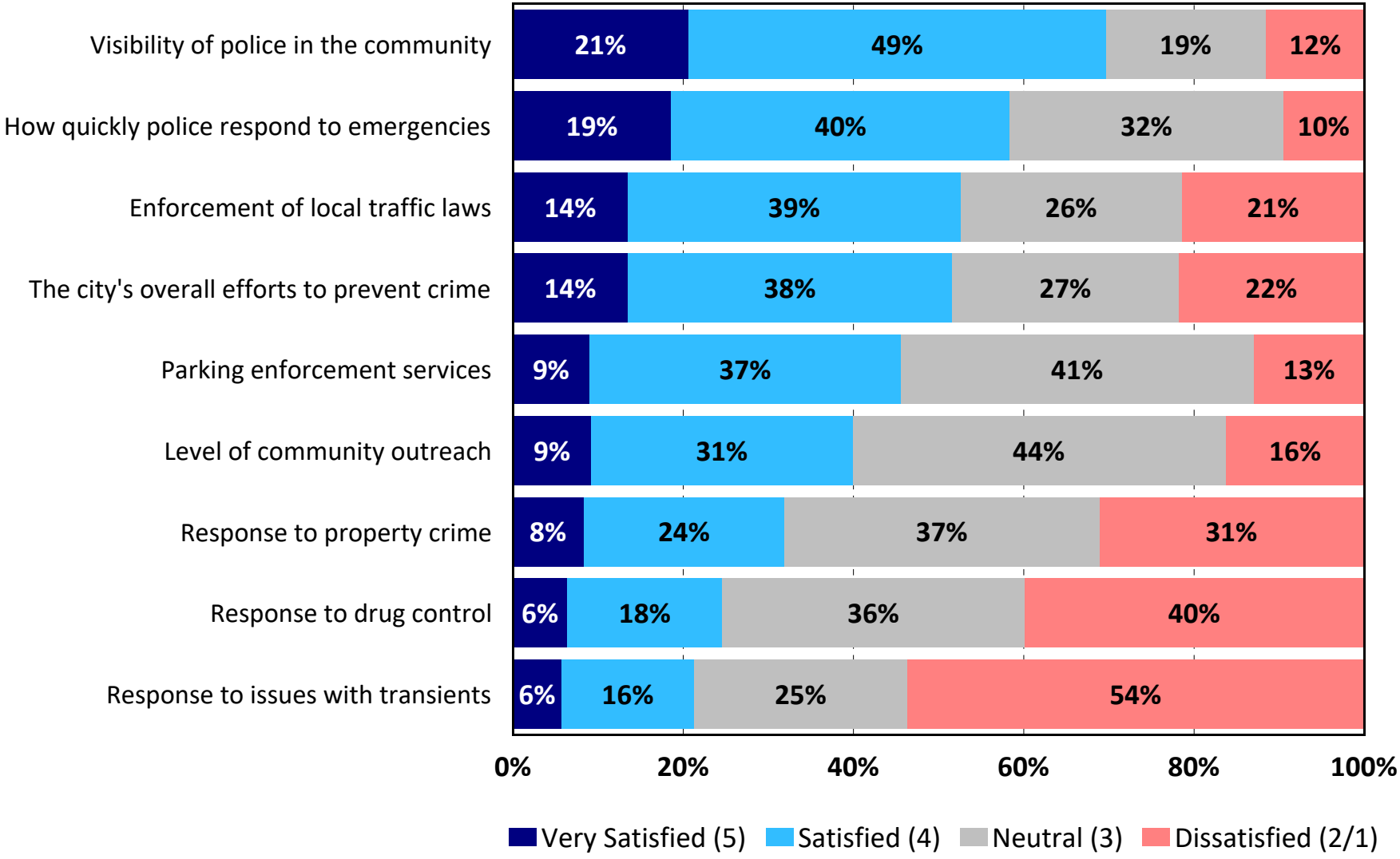
Q7. Satisfaction With Diversity and Inclusion

by percentage of respondents (excluding don't knows)



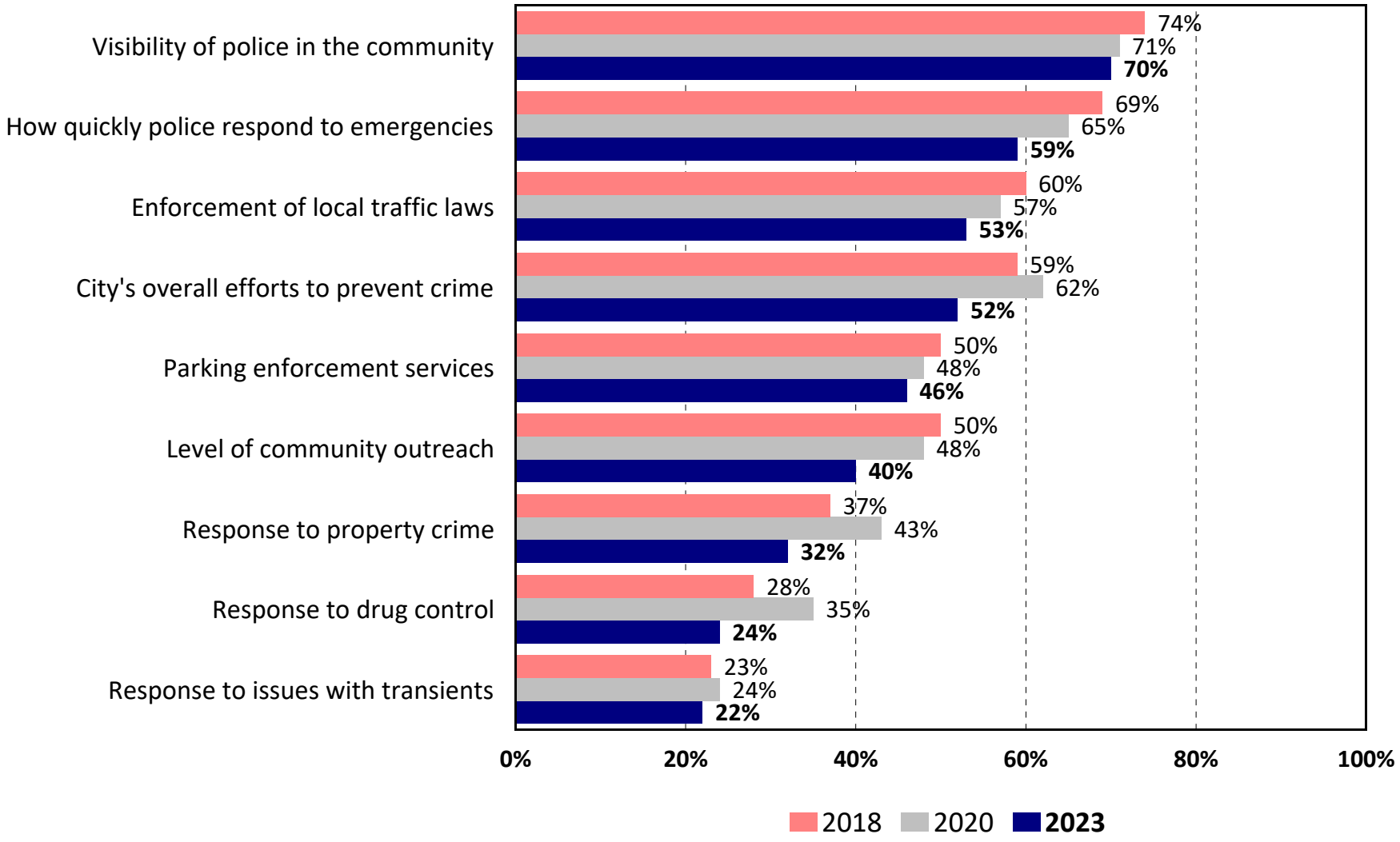
Q8. Satisfaction With Public Safety Services

by percentage of respondents (excluding don't knows)



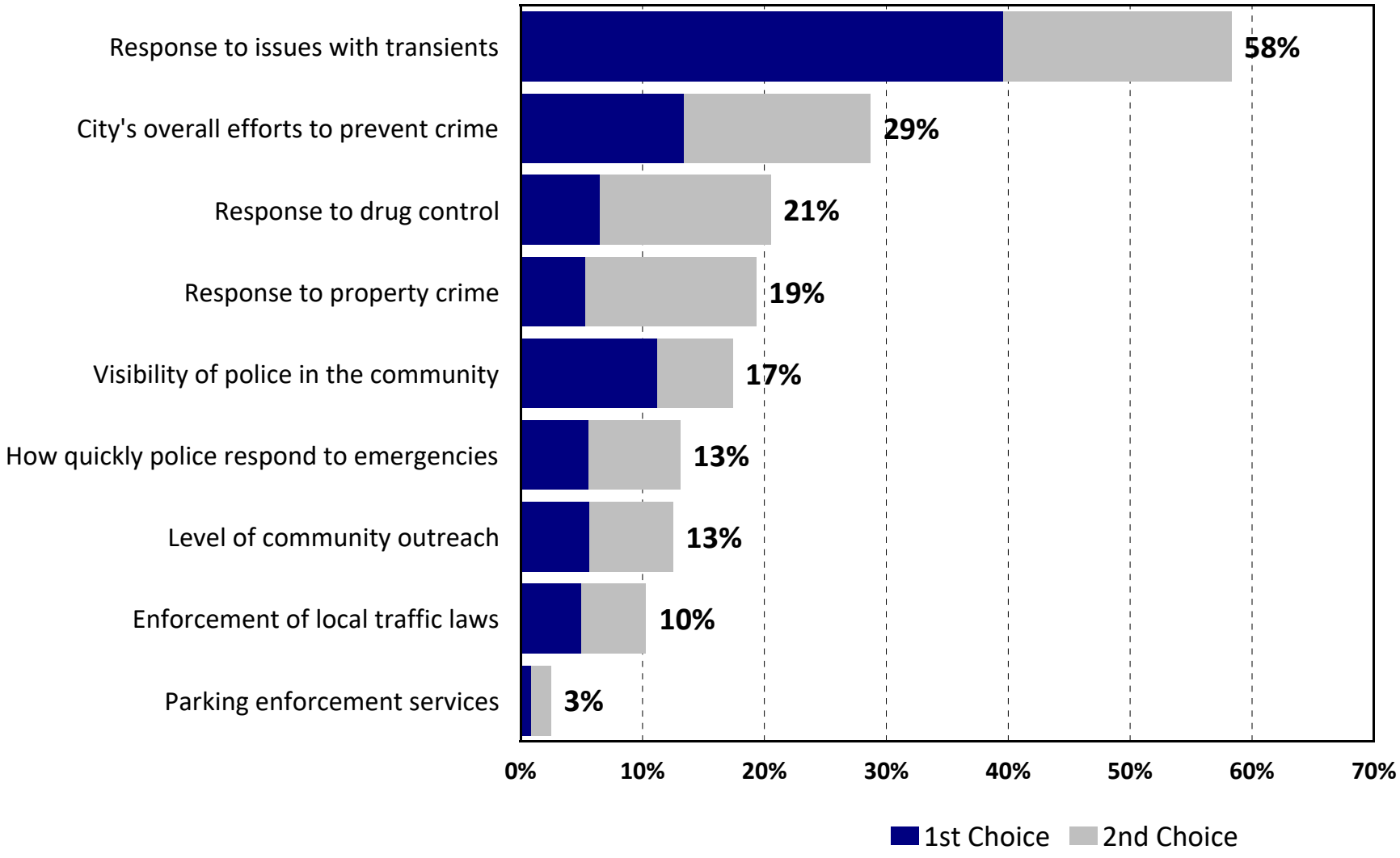
TRENDS: Satisfaction with Public Safety Services
2018 to 2023

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



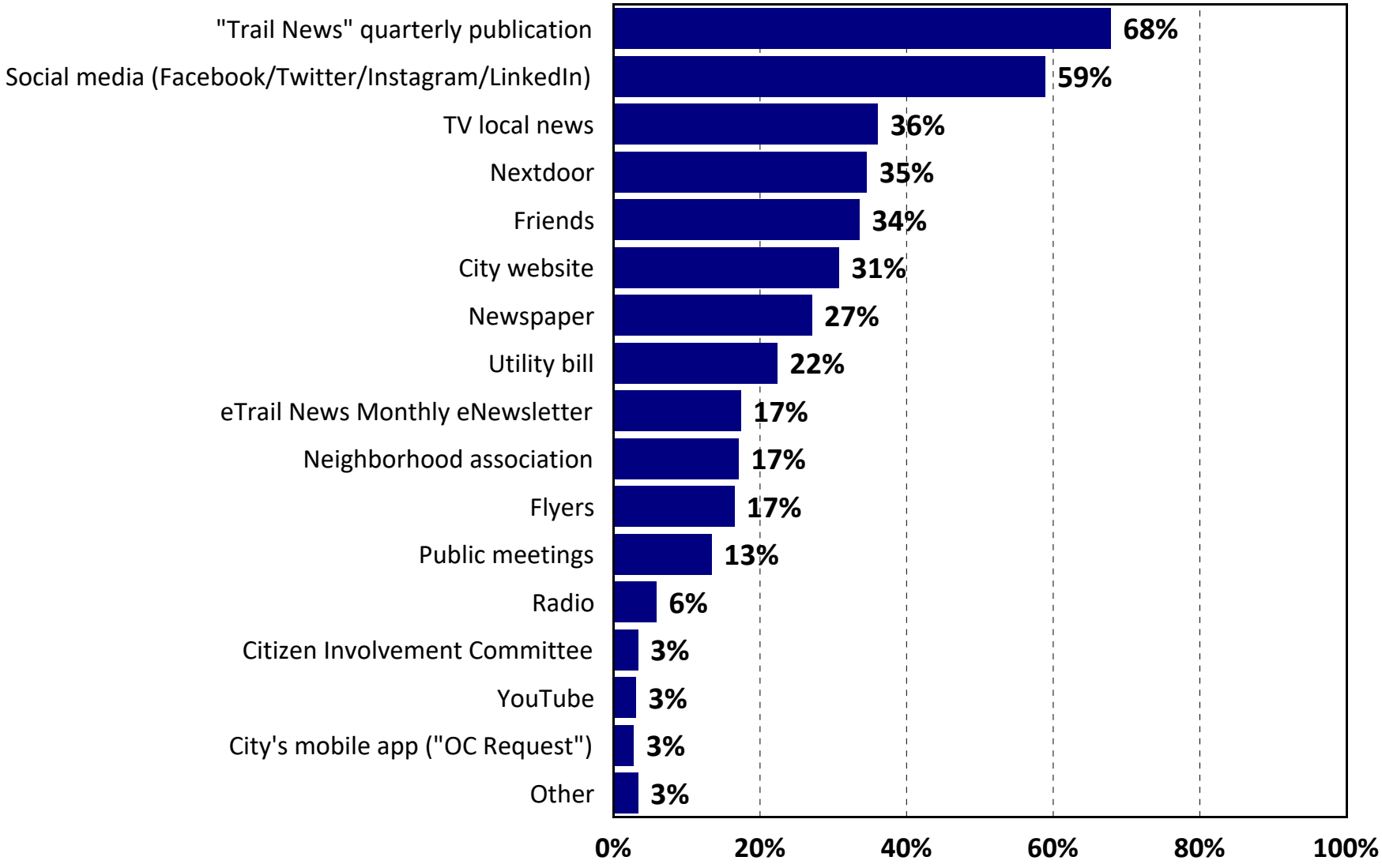
Q9. Public Safety Services That Should Receive the Most Emphasis from City Leaders Over the Next Two Years

by percentage of respondents who selected the item as one of their top two choices



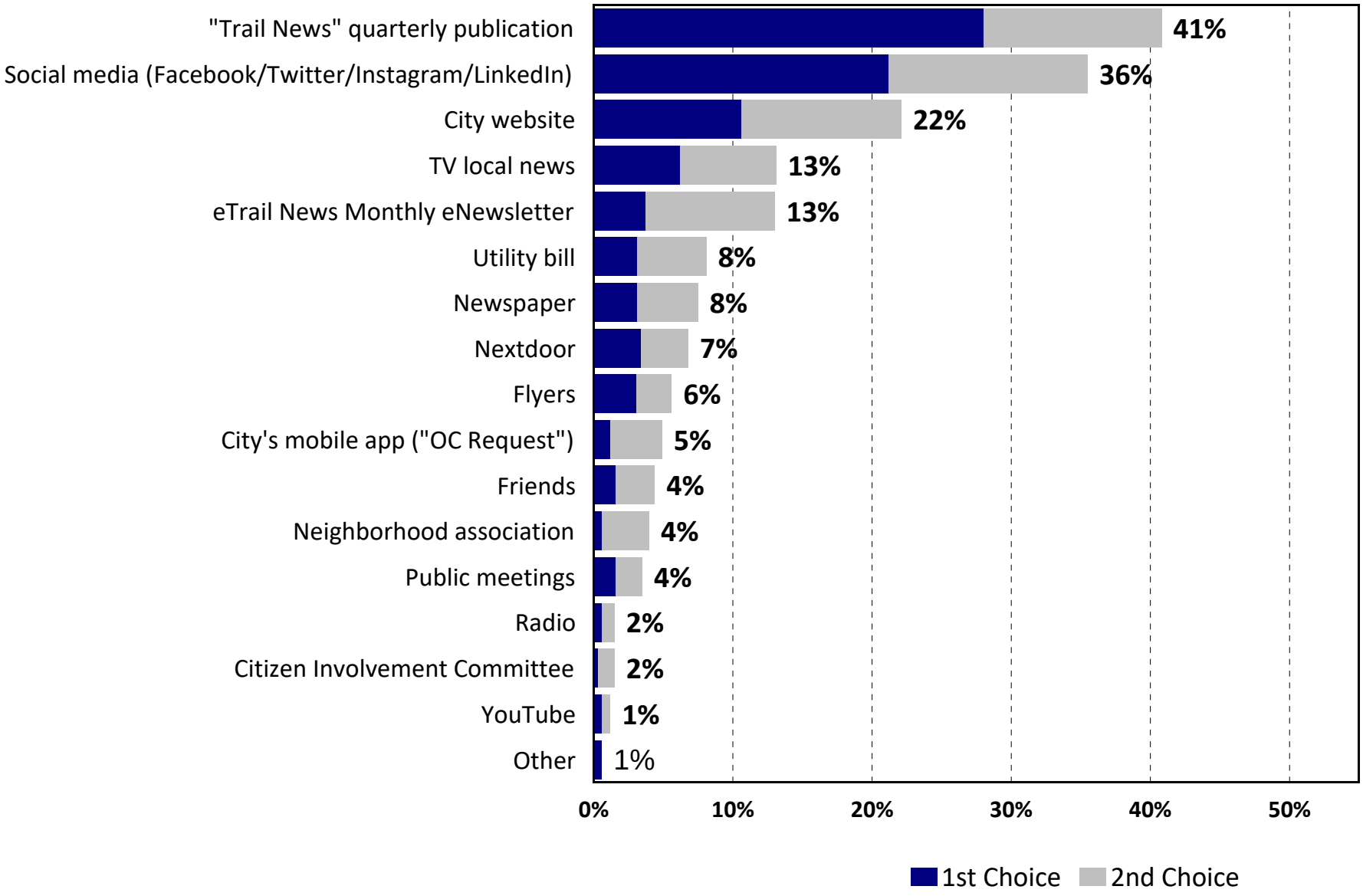
Q10. Where do you currently get news and information about City programs, services, and events?

by percentage of respondents (multiple choices could be made)



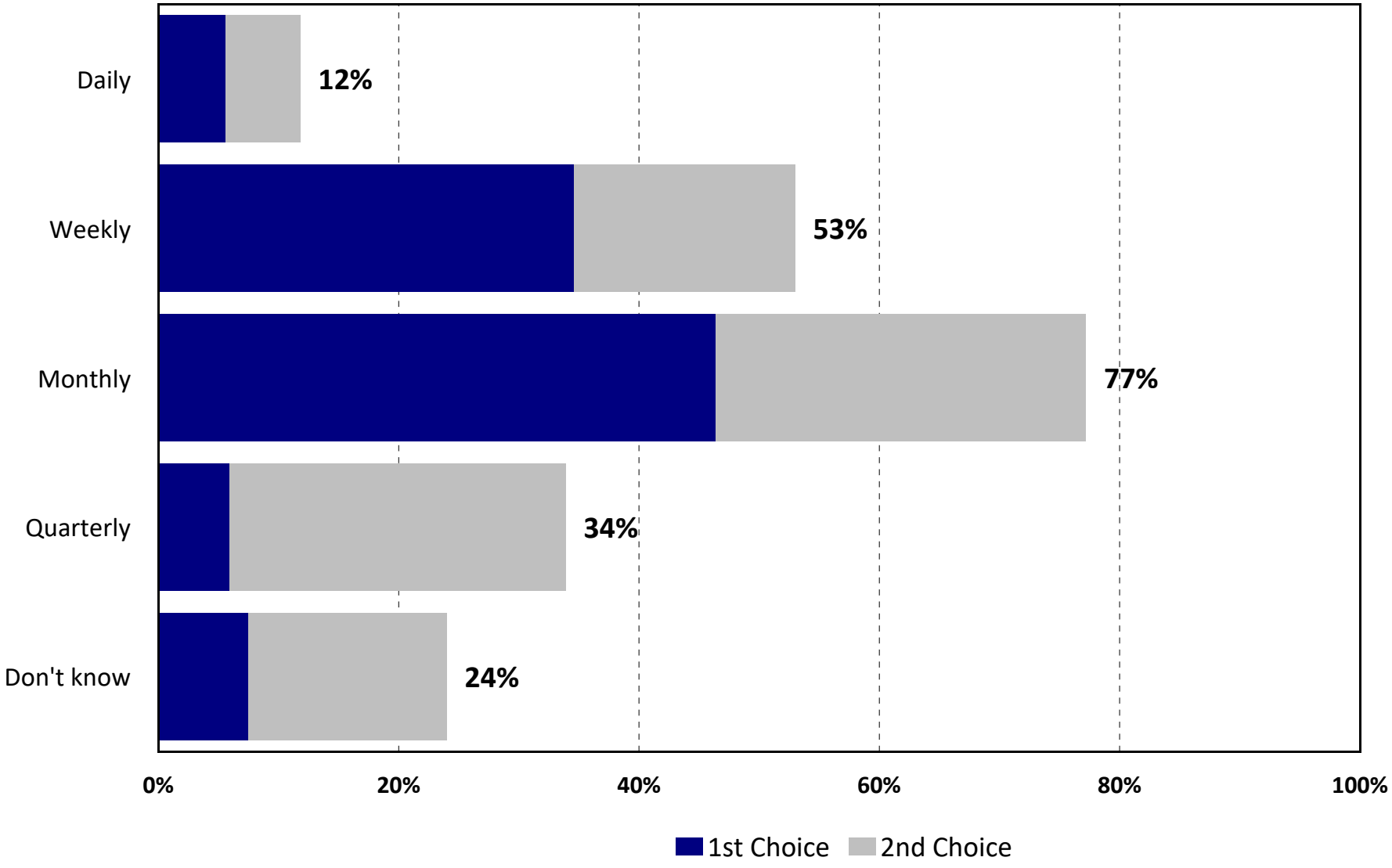
Q10a. Most Preferred Way to Get Information From the City

by percentage of respondents who selected the item as one of their top two choices



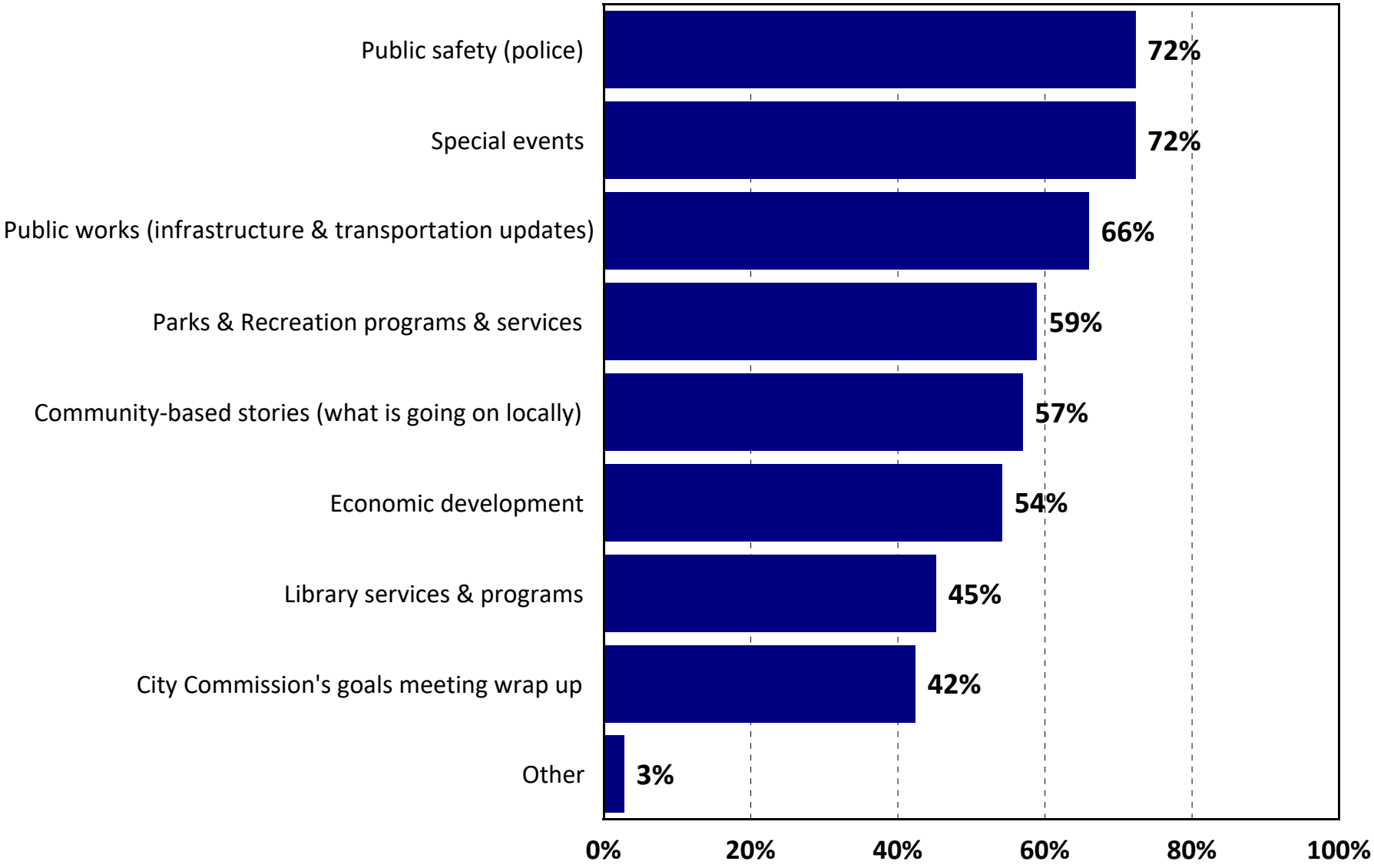
Q10b. How Frequently Respondents Would Like to Receive Information From the City

by percentage of respondents who selected the item as one of their top two choices



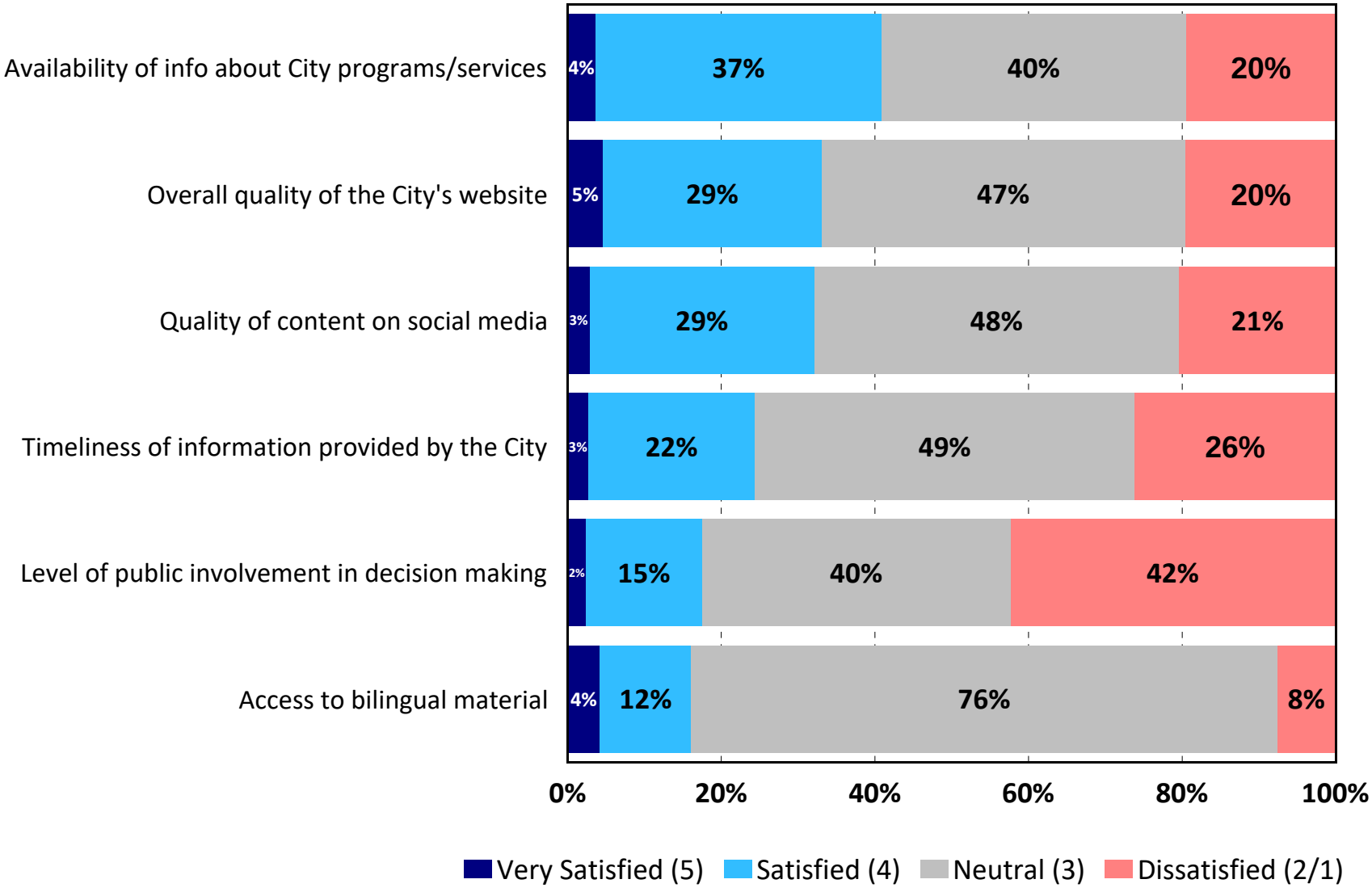
Q11. Types of Information Would Like to Receive From the City of Oregon City

by percentage of respondents (multiple choices could be made)



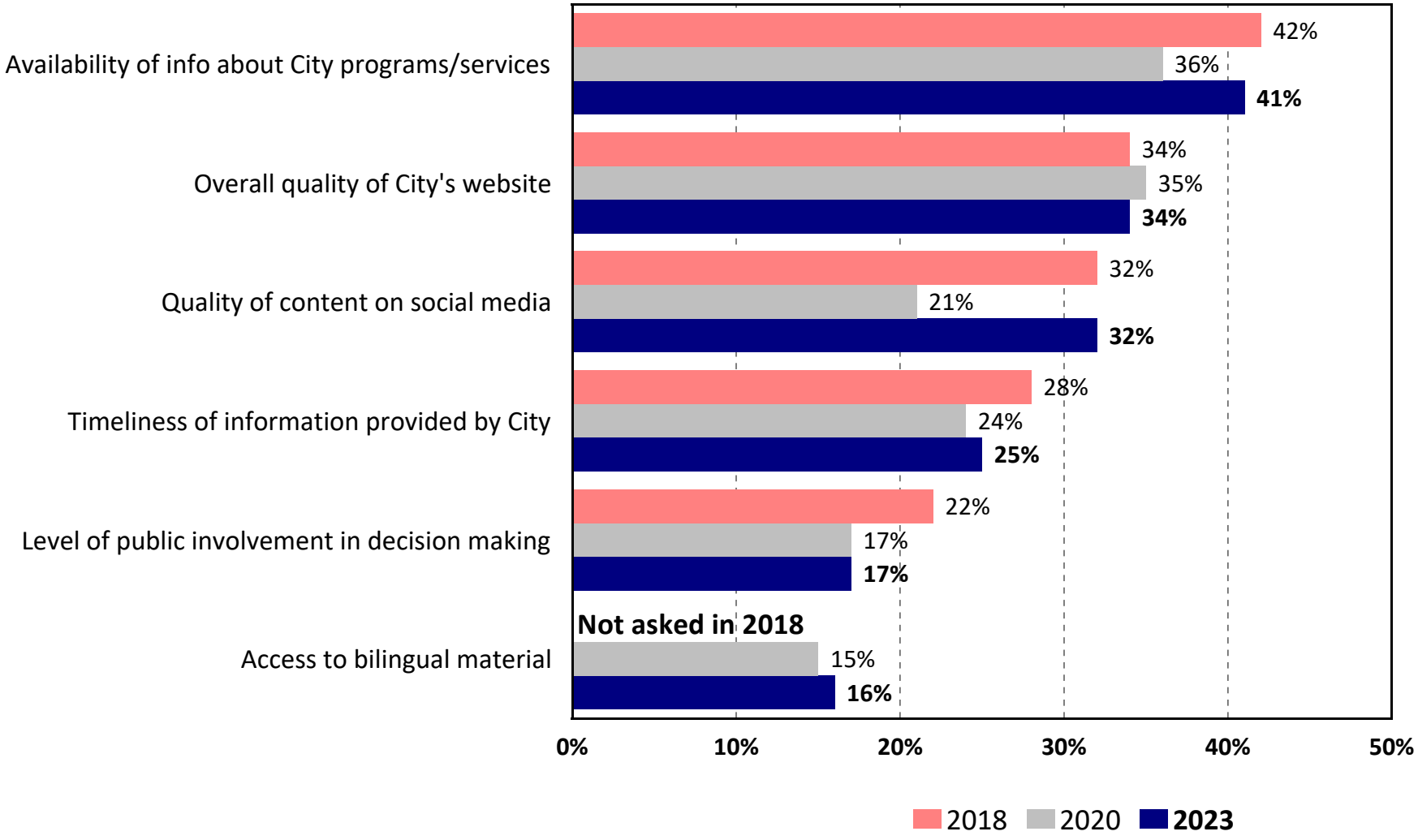
Q12. Satisfaction With City Communication

by percentage of respondents (excluding don't knows)



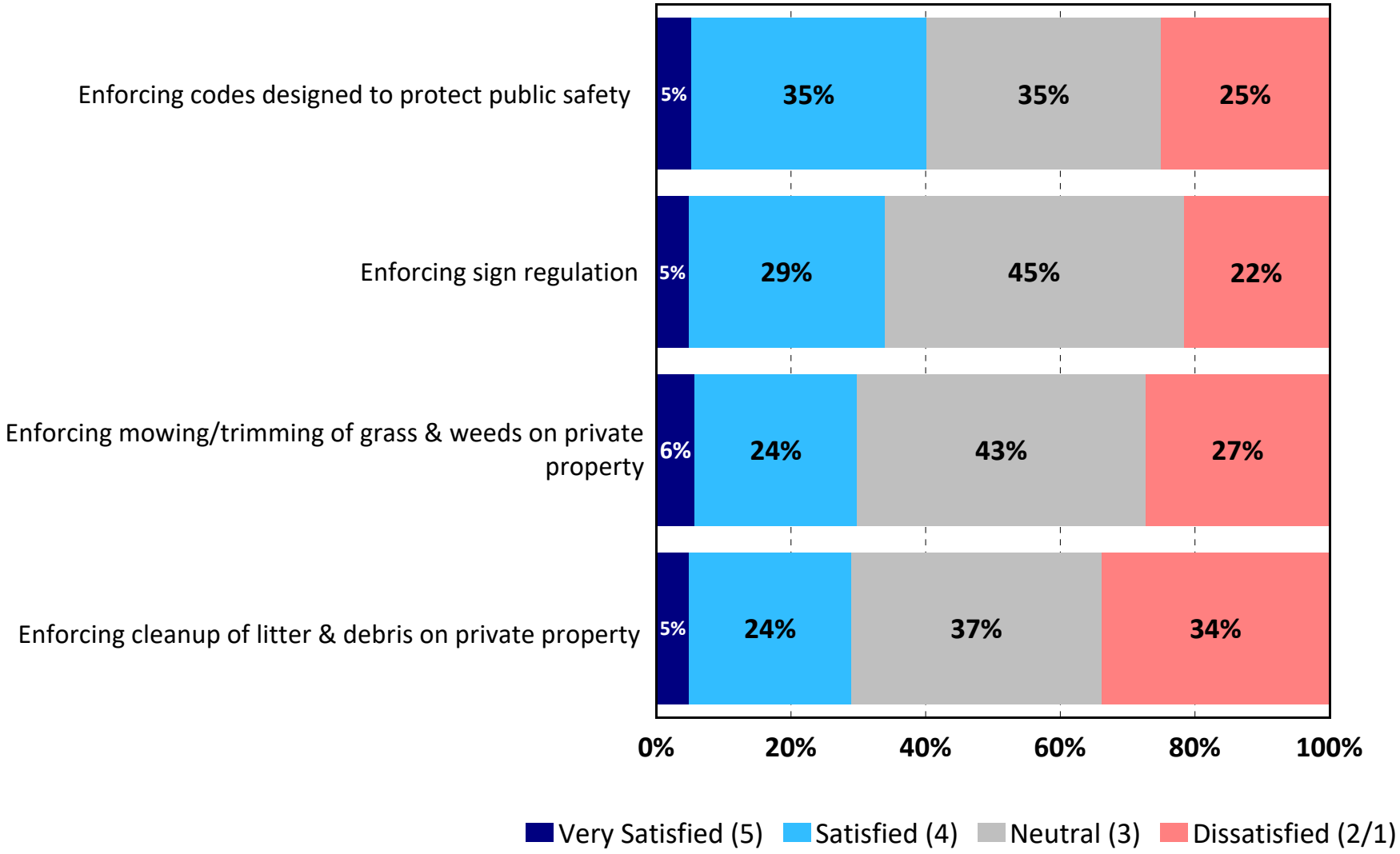
TRENDS: Satisfaction With City Communication
2018 to 2023

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



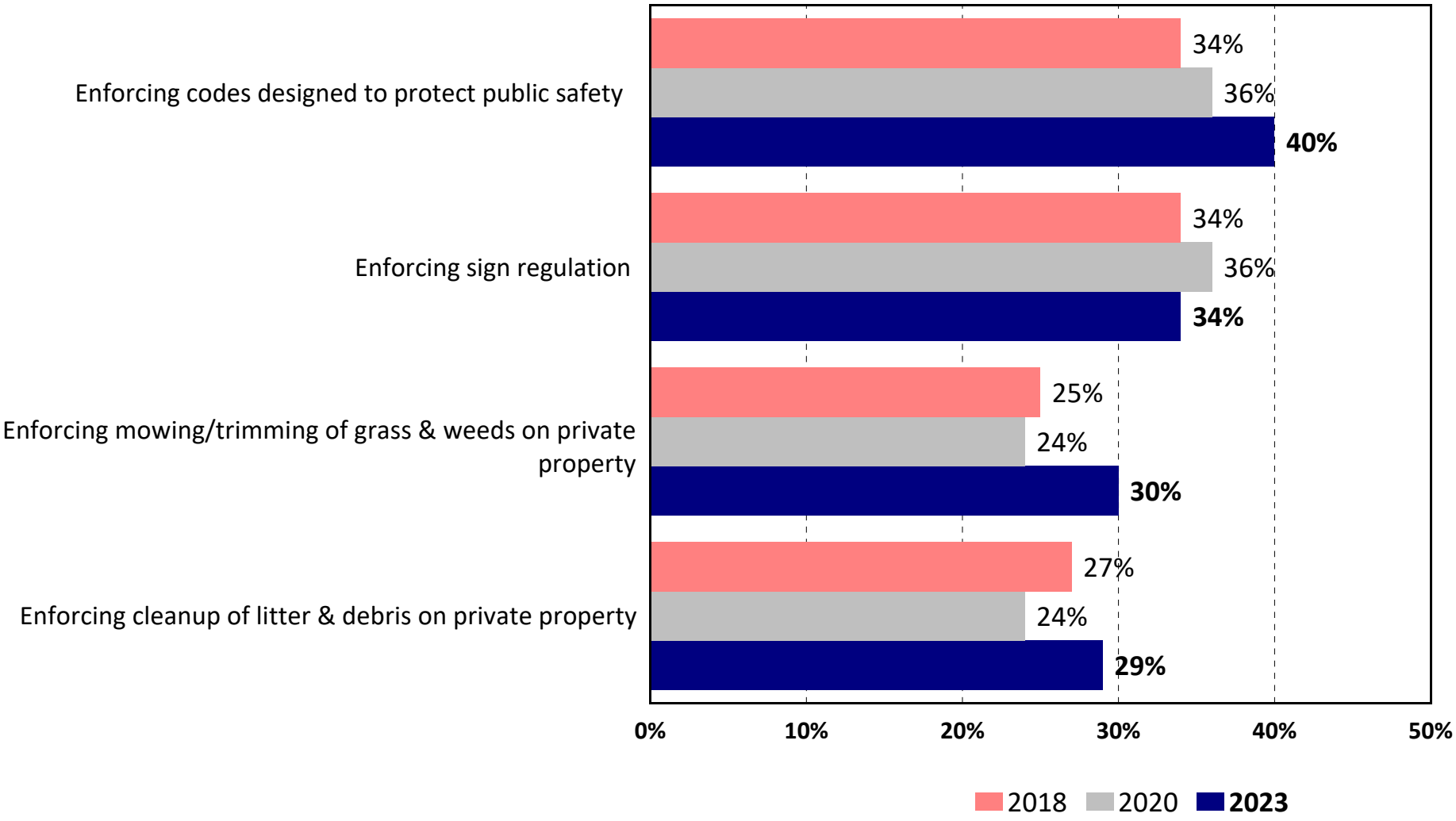
Q13. Satisfaction With Code Enforcement

by percentage of respondents (excluding don't knows)



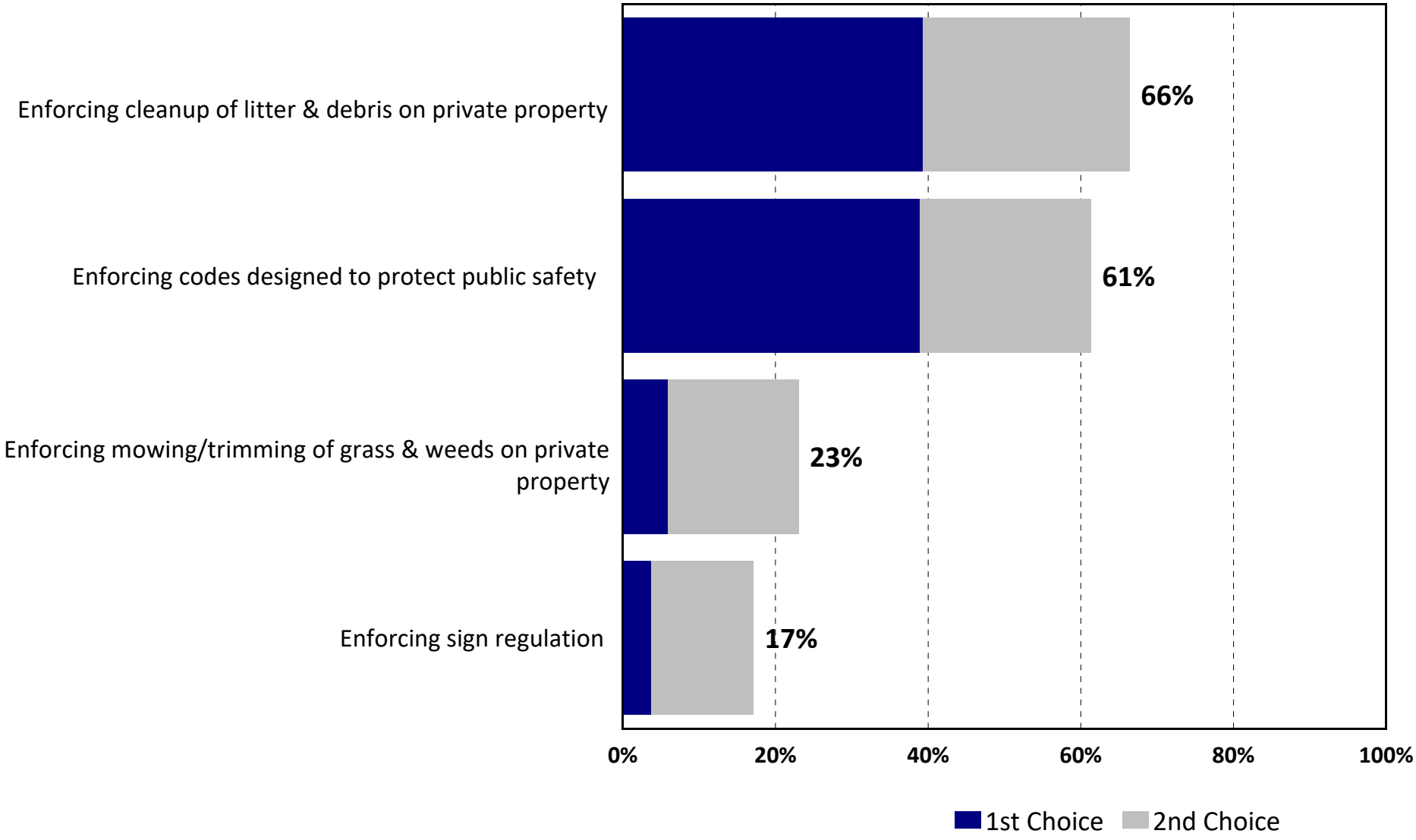
TRENDS: Satisfaction With Code Enforcement
2018 to 2023

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



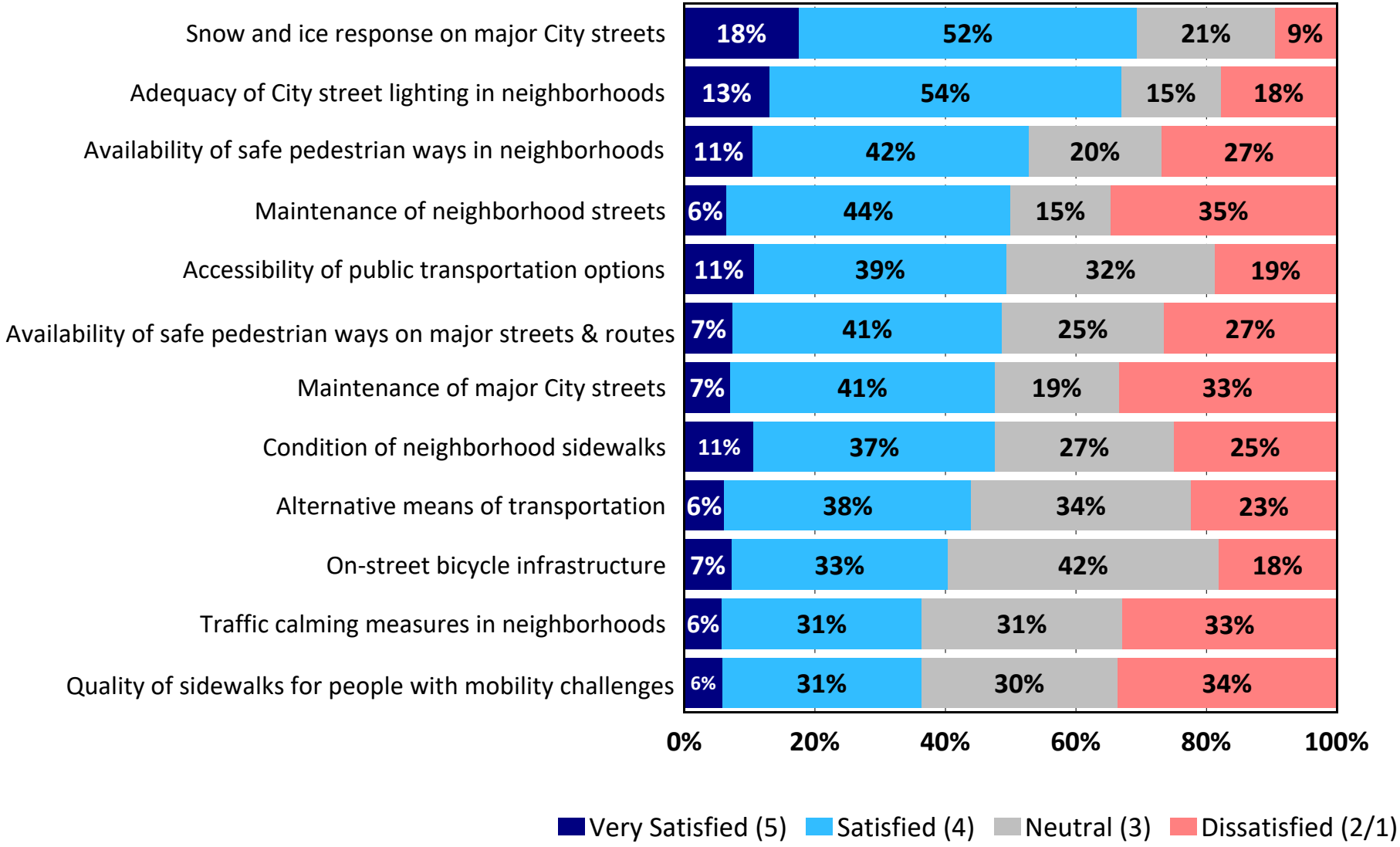
Q14. Code Enforcement Services That Should Receive the Most Emphasis Over the Next Two Years

by percentage of respondents who selected the item as one of their top two choices



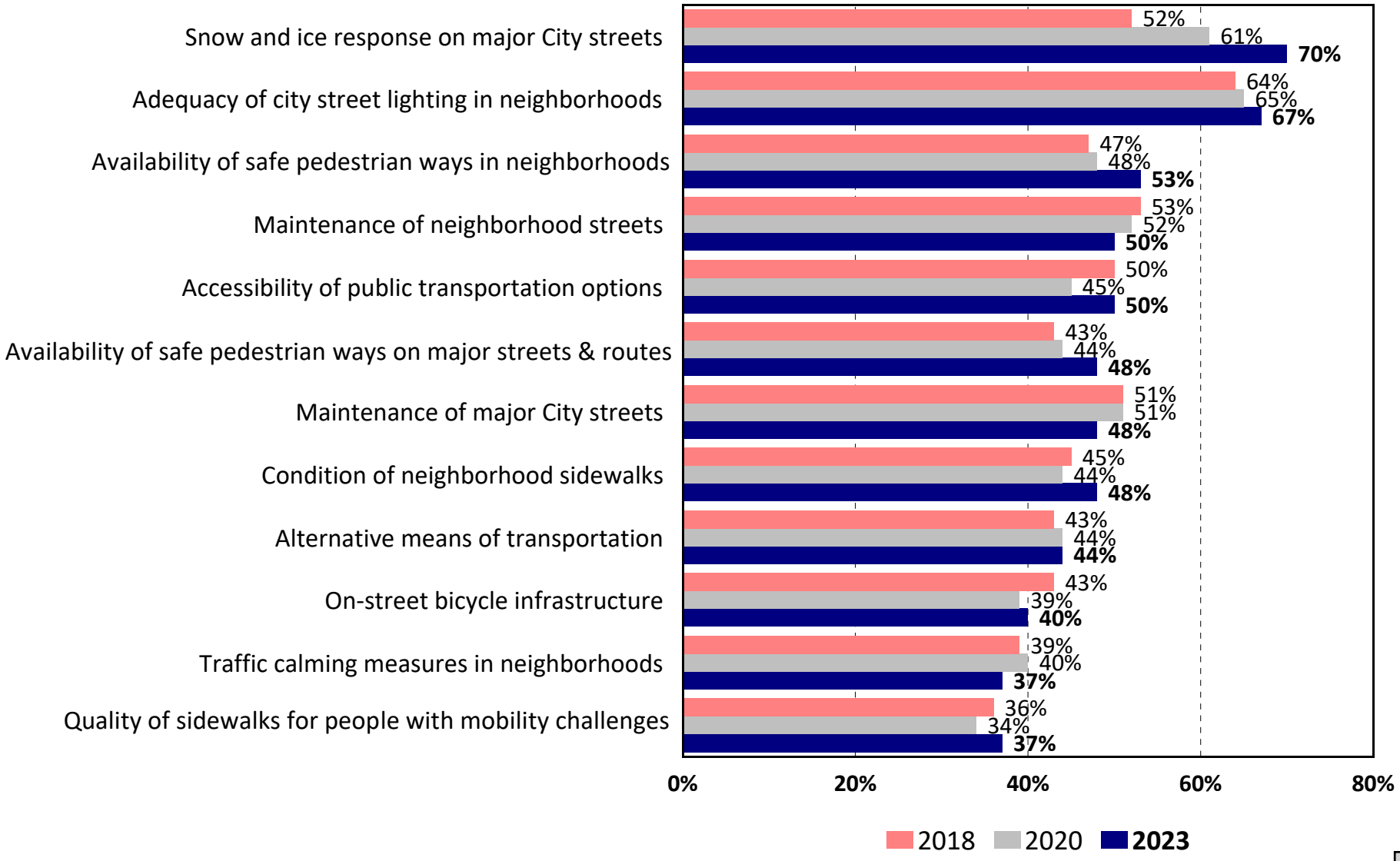
Q15. Satisfaction With Traffic and Infrastructure Services

by percentage of respondents (excluding don't knows)



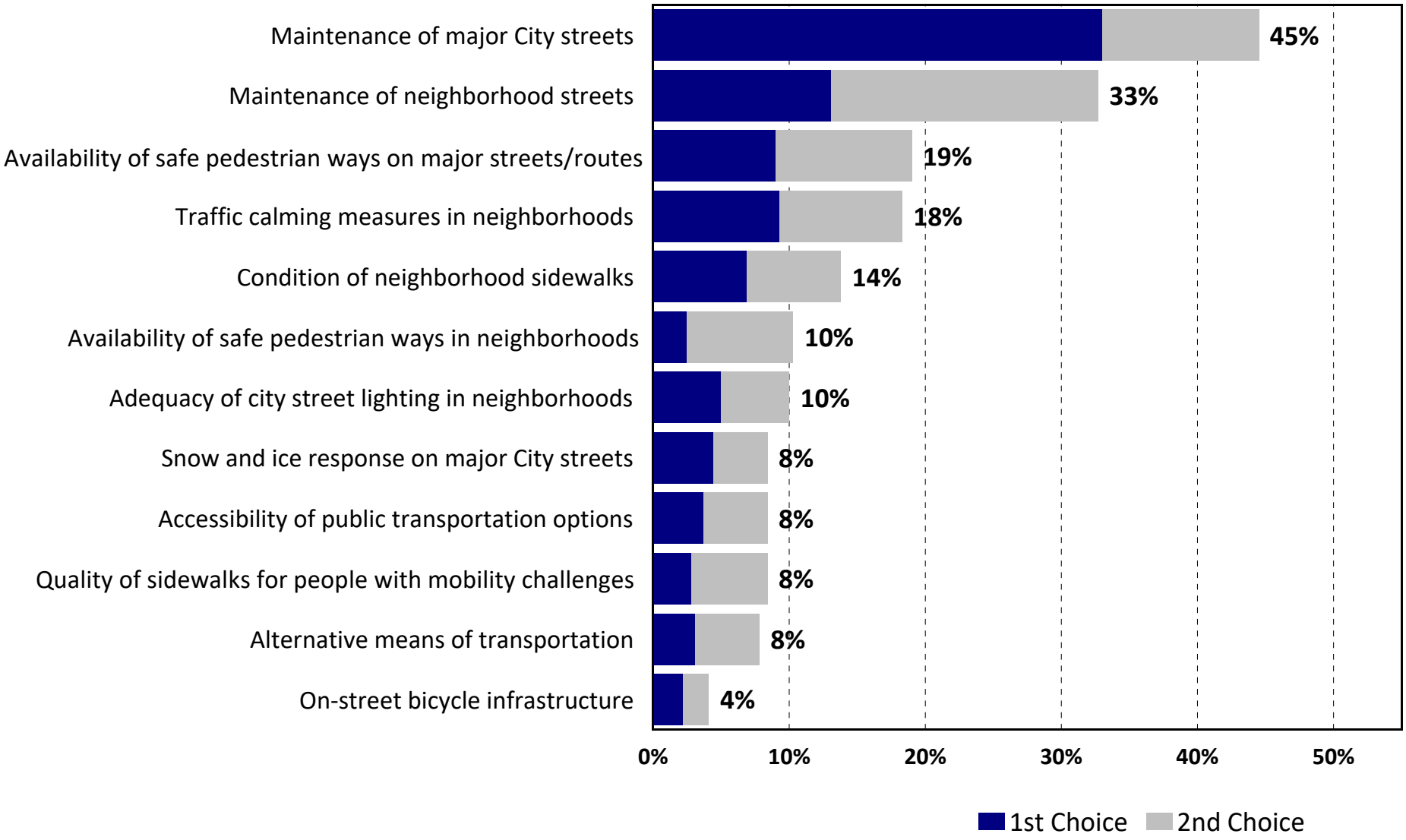
TRENDS: Satisfaction With Traffic and Infrastructure Services *2018 to 2023*

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



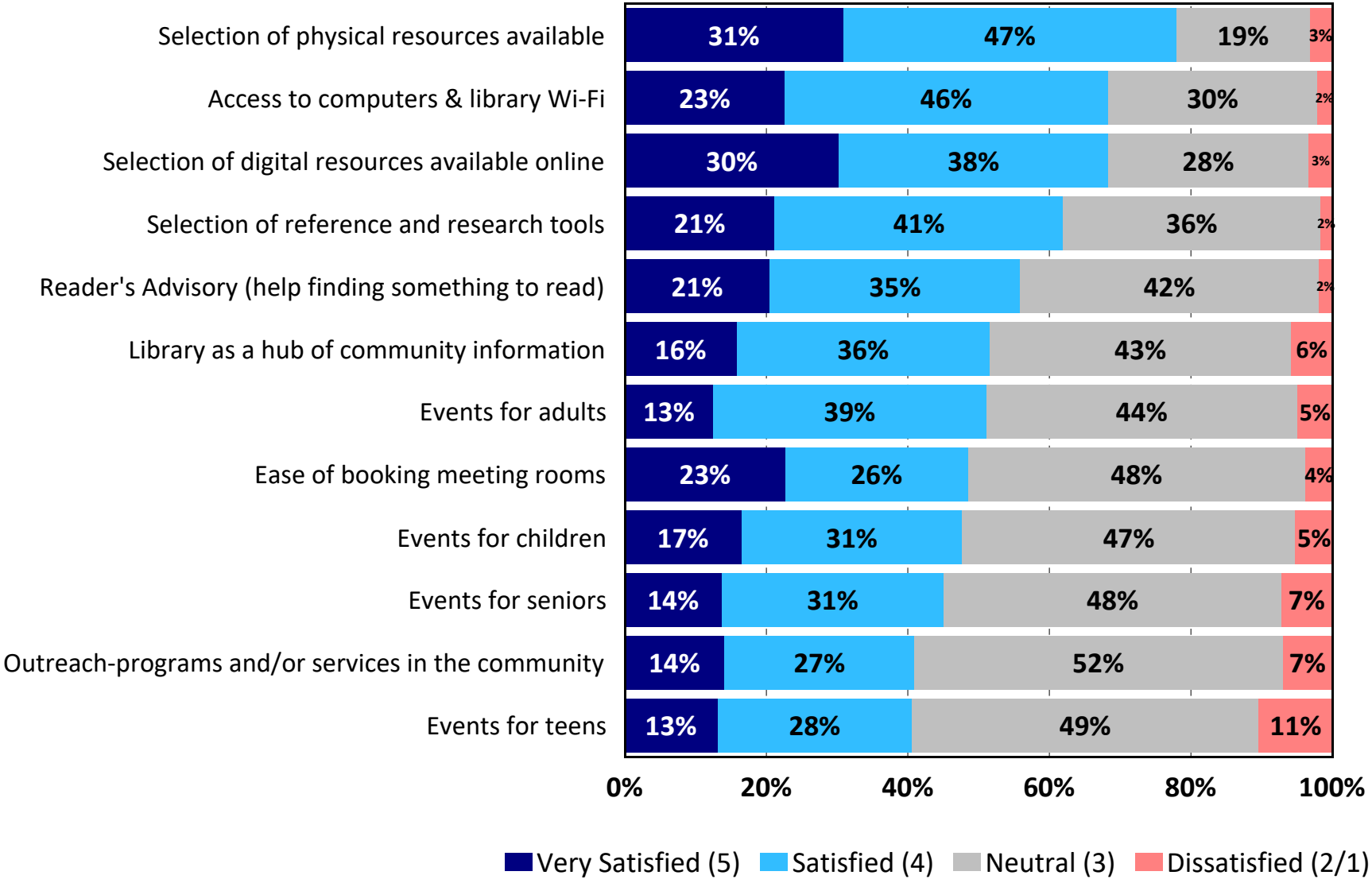
Q16. Traffic and Infrastructure Services That Should Receive the Most Emphasis Over the Next Two Years

by percentage of respondents who selected the item as one of their top two choices



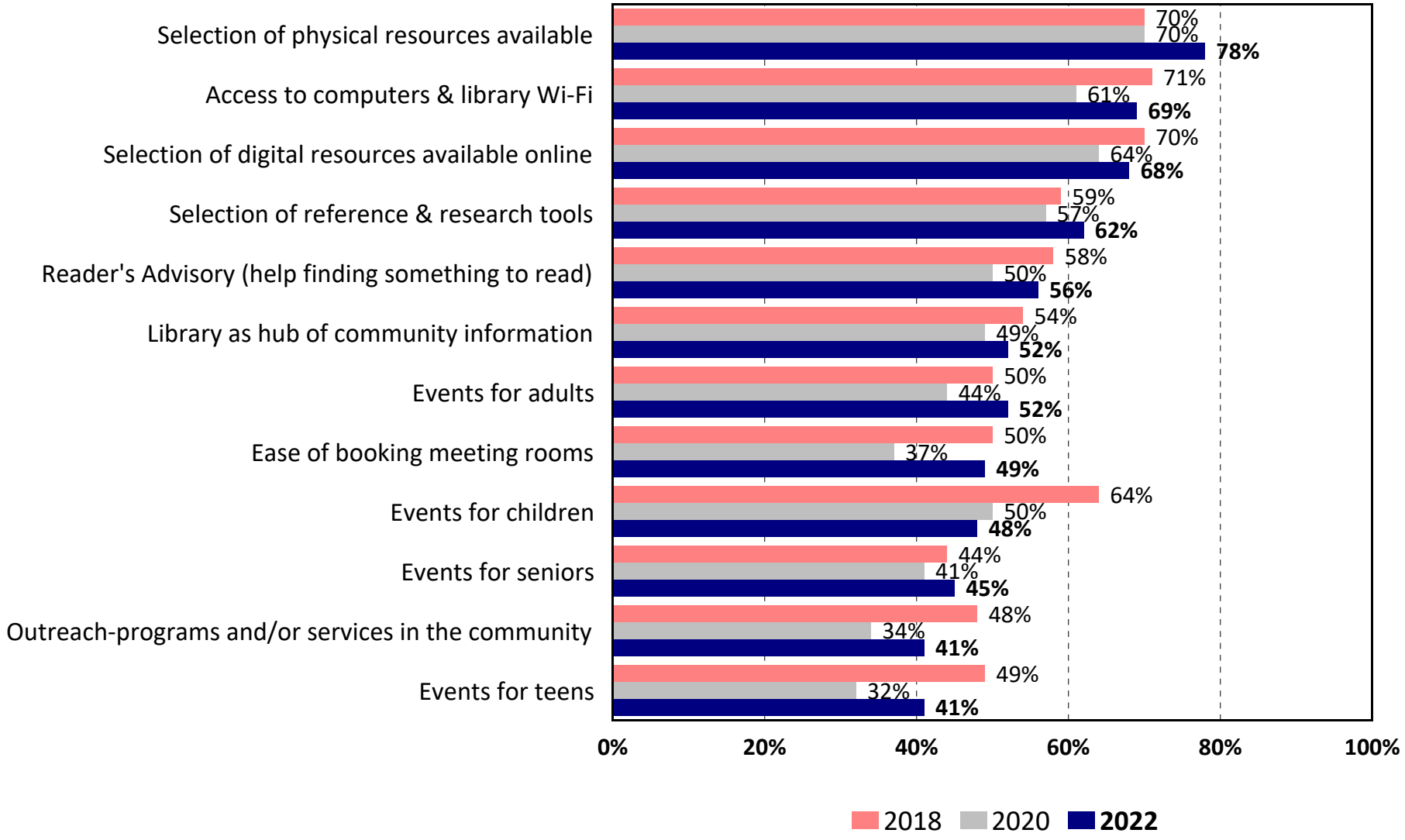
Q17. Satisfaction With Public Library Services

by percentage of respondents (excluding don't knows)



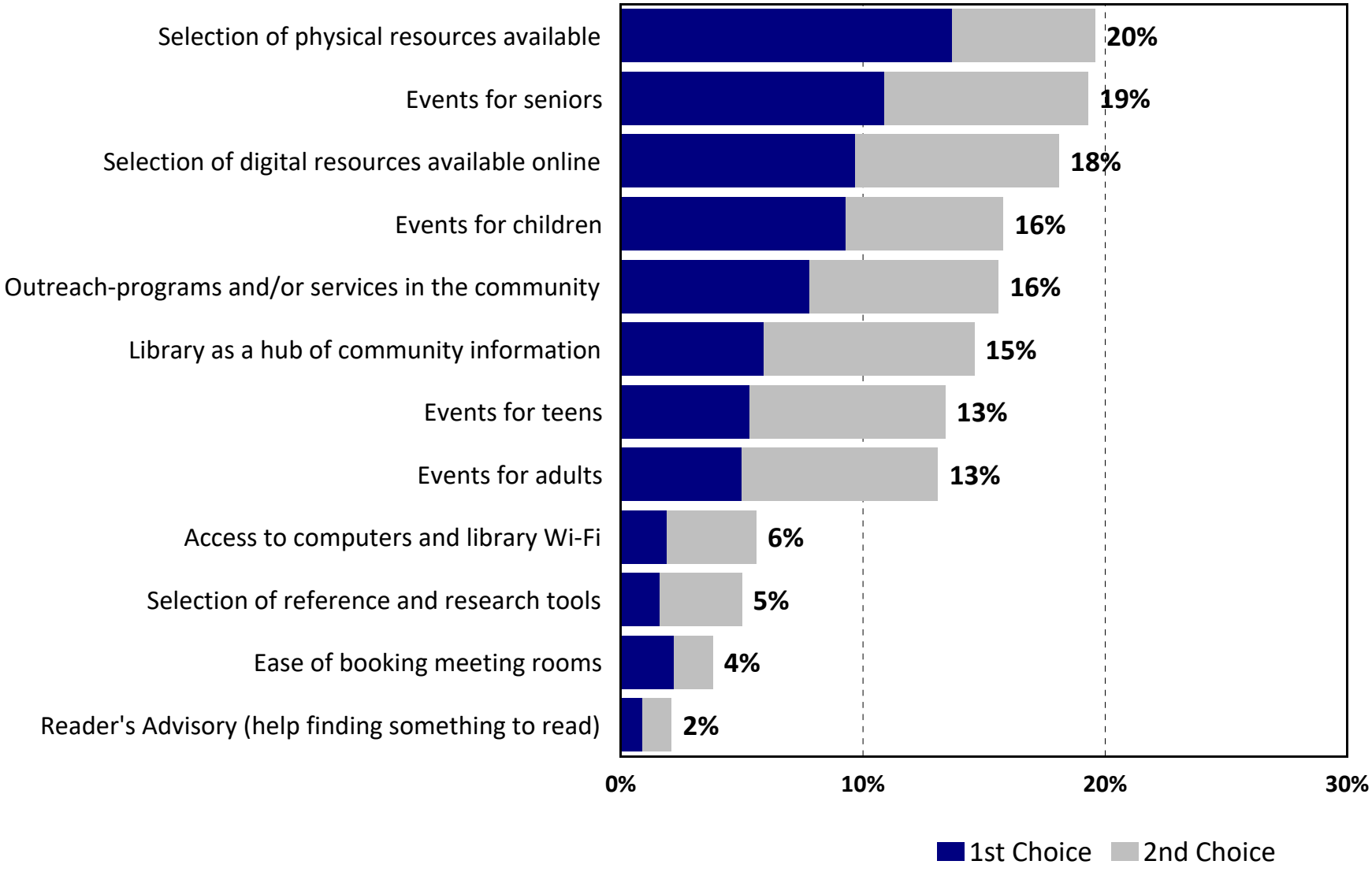
TRENDS: Satisfaction With Public Library Services
2018 to 2023

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



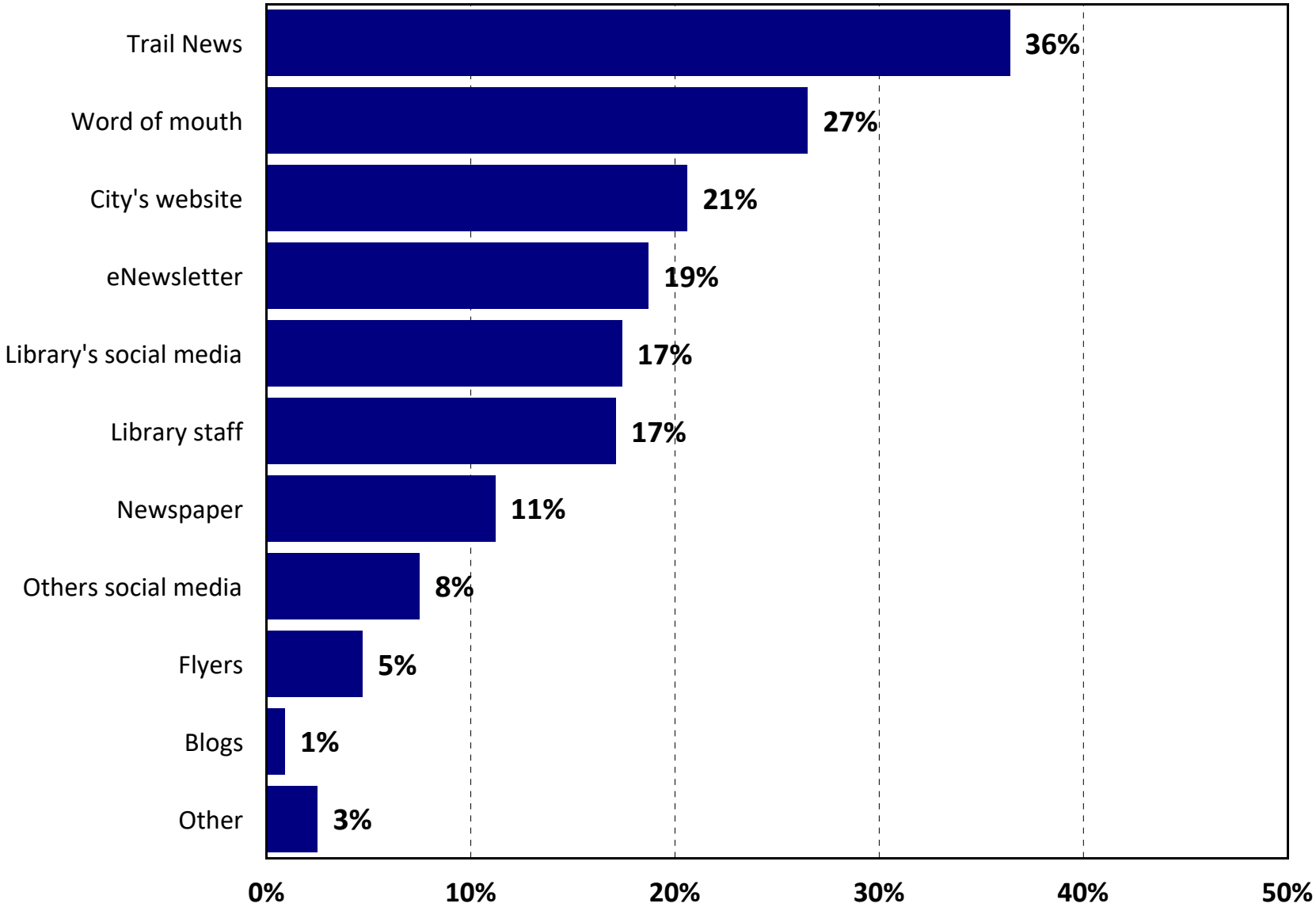
Q18. Public Library Services That Should Receive the Most Emphasis Over the Next Two Years

by percentage of respondents who selected the item as one of their top two choices



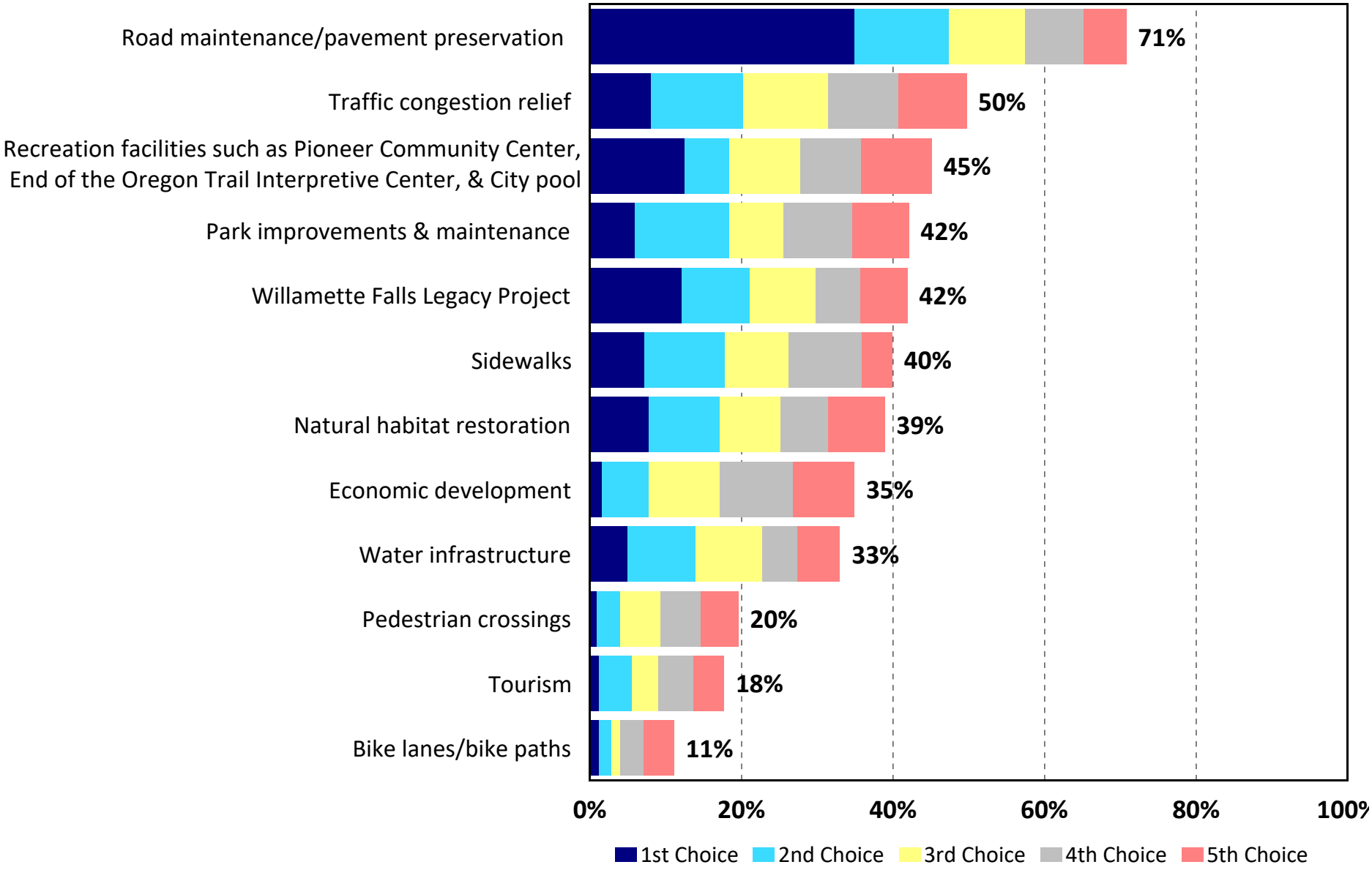
Q19. How do you get information about the library?

by percentage of respondents (multiple choices could be made)



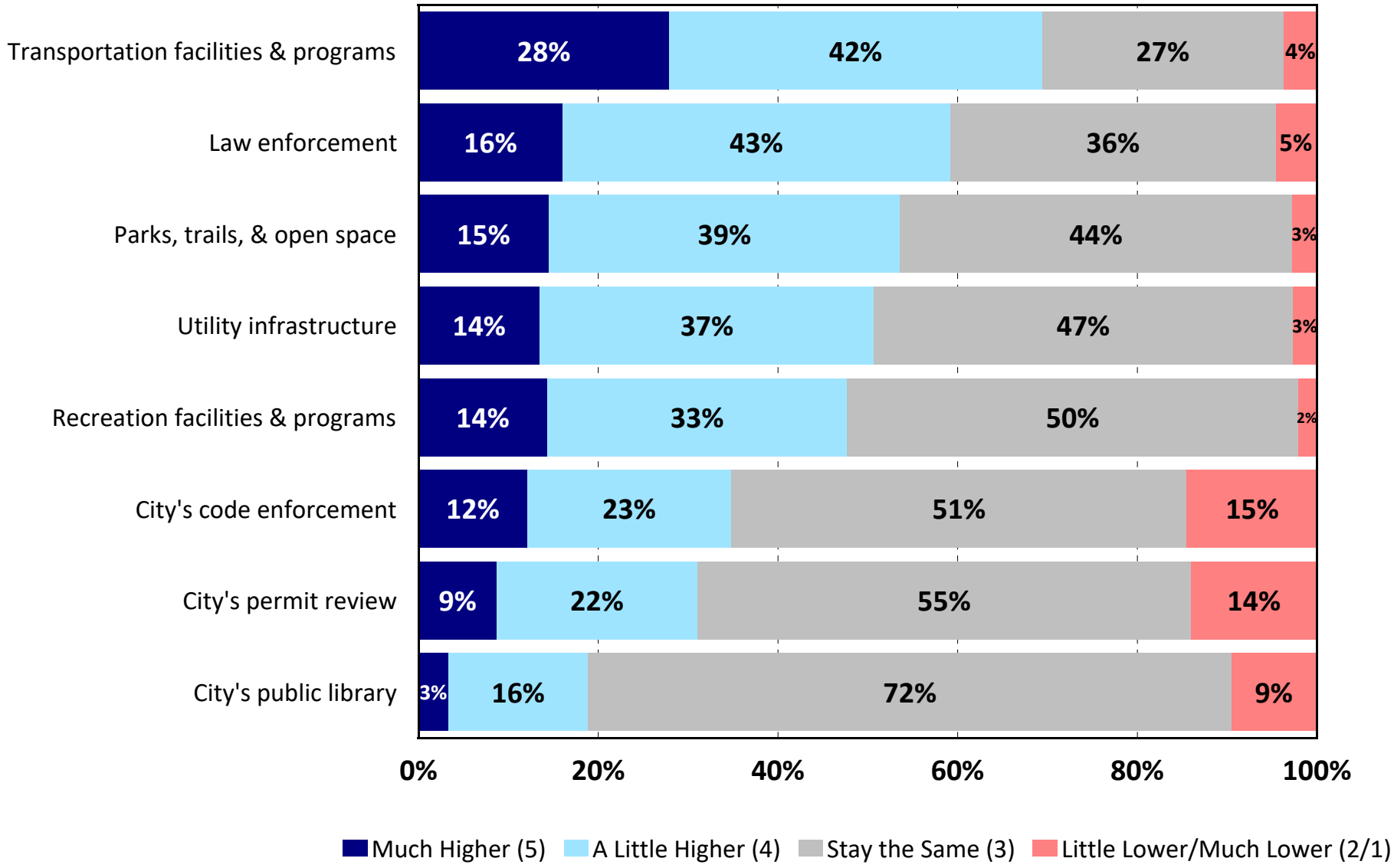
Q20. Top Capital Investment Priorities

by percentage of respondents who selected the item as one of their top five choices



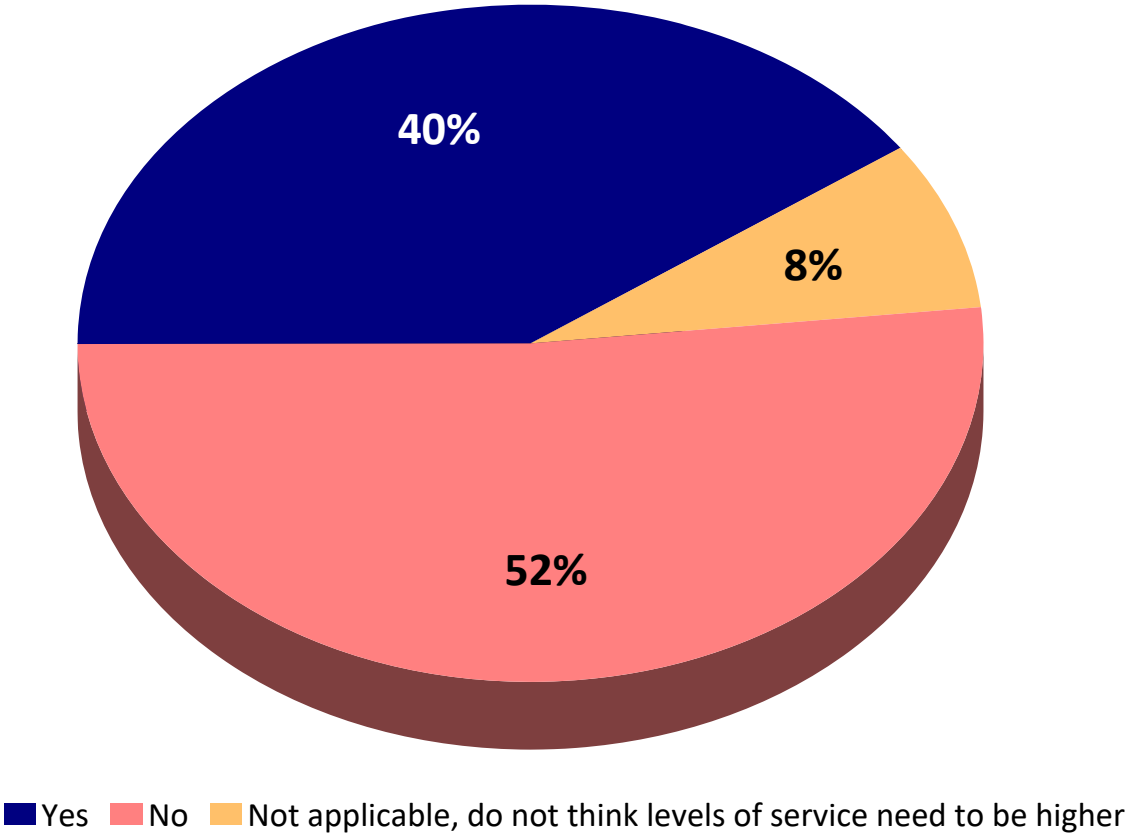
Q21. Level of Change in Service Expectations

by percentage of respondents who rated the item as a 1 to 5 on a 5-point scale (excluding don't knows)



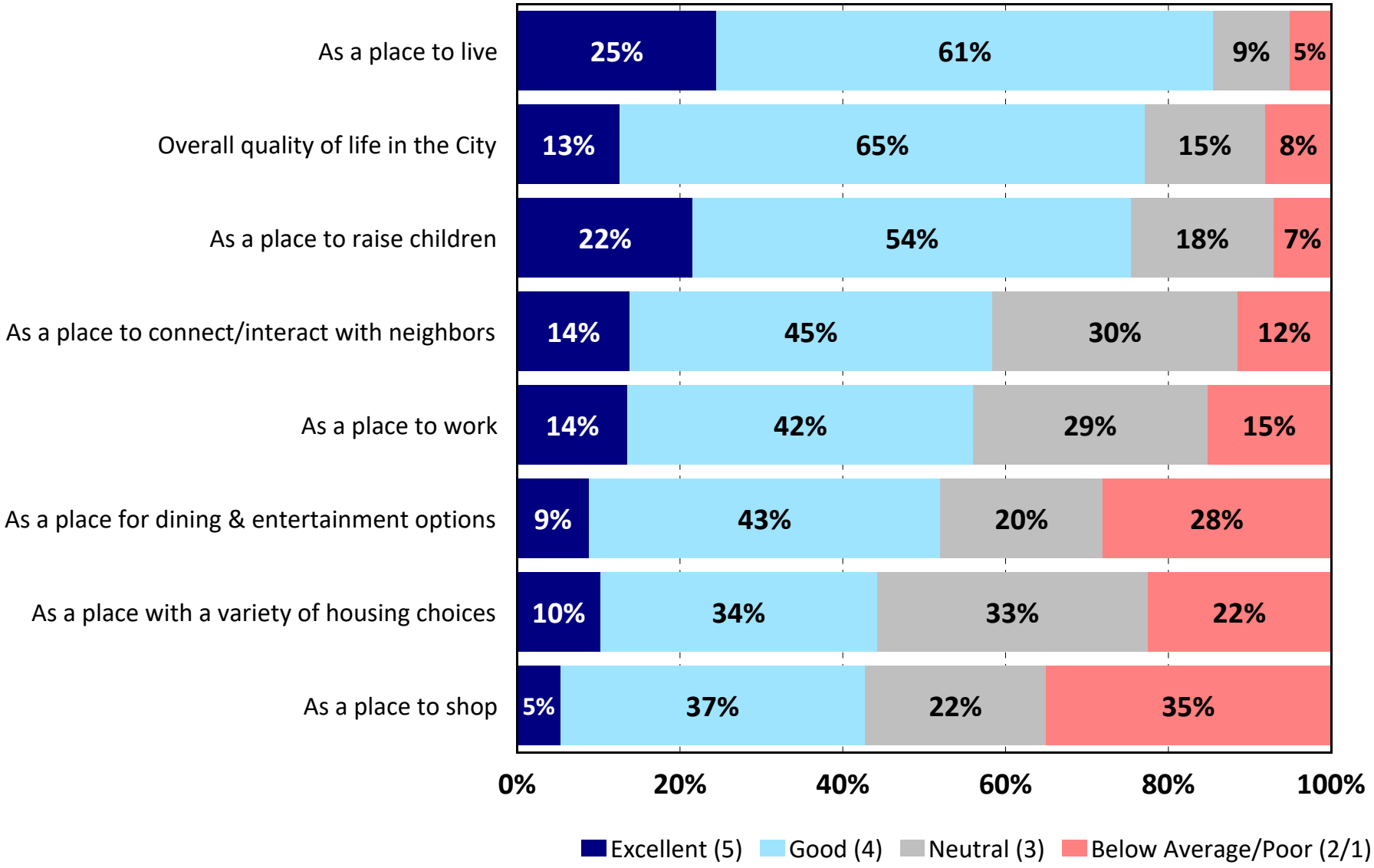
Q21a. Would you be willing to pay more in taxes or fees to support an increase in the service level?

by percentage of respondents



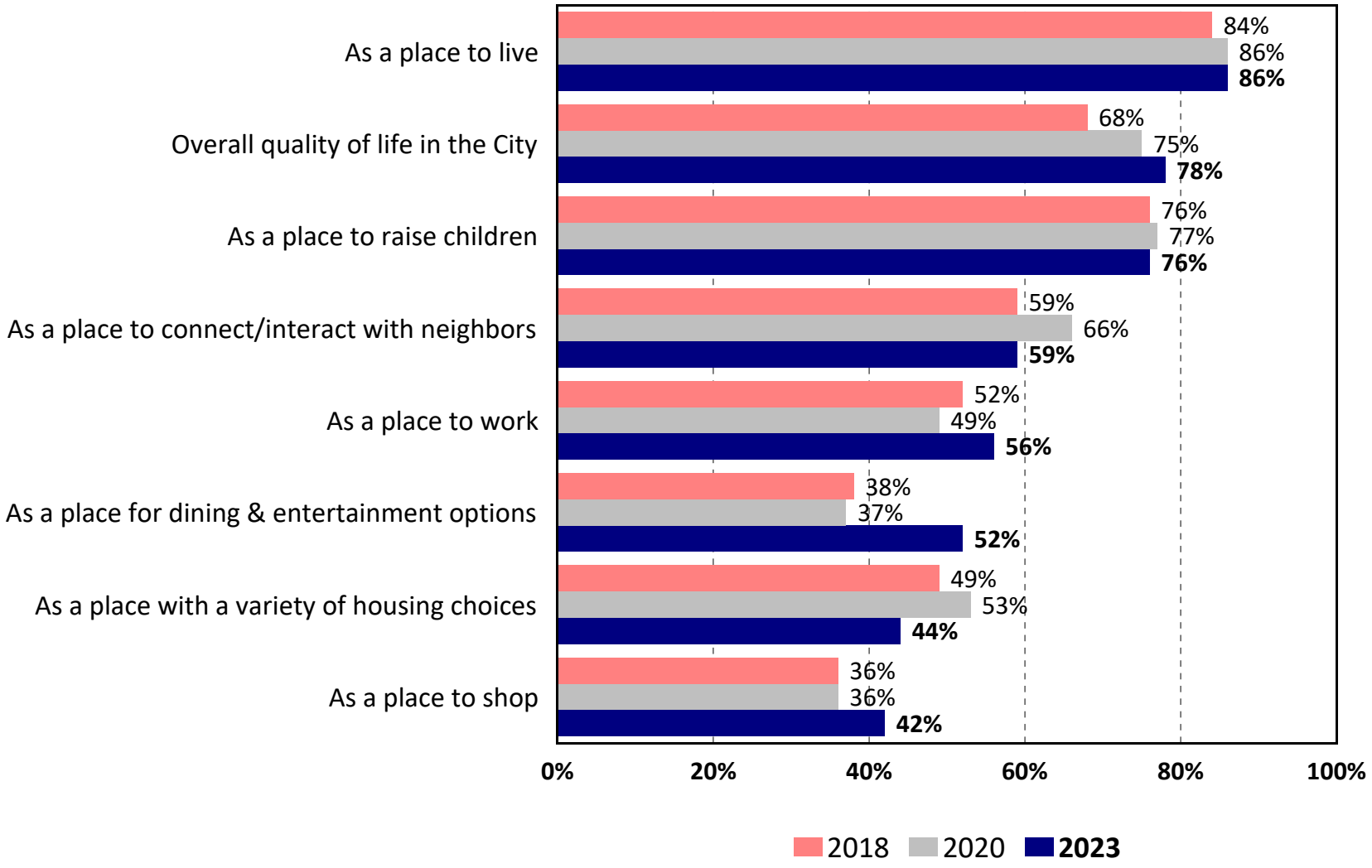
Q22. Ratings of Oregon City

by percentage of respondents who rated the item as a 1 to 5 on a 5-point scale (excluding don't knows)



TRENDS: Ratings of Oregon City
2018 to 2023

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)

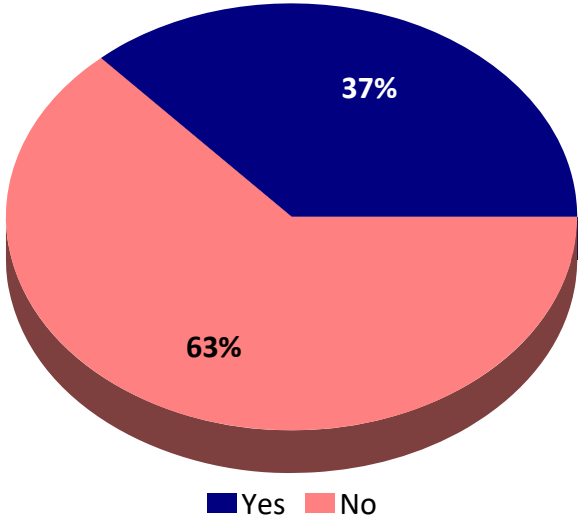


Q23. Have you called, emailed, or visited the city with a question, problem, or complaint during the past year?

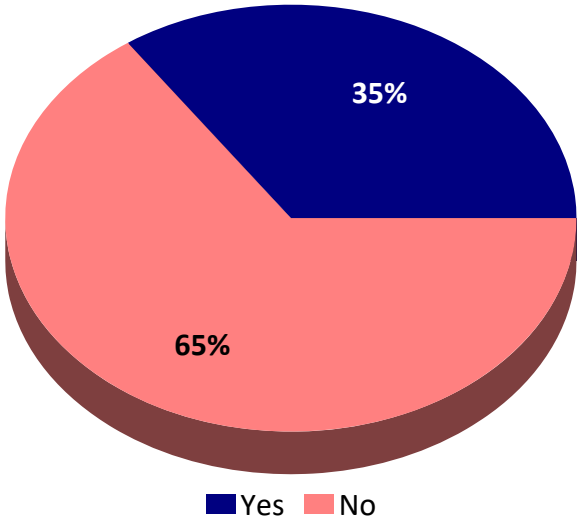
by percentage of respondents (excluding don't knows)

TRENDS

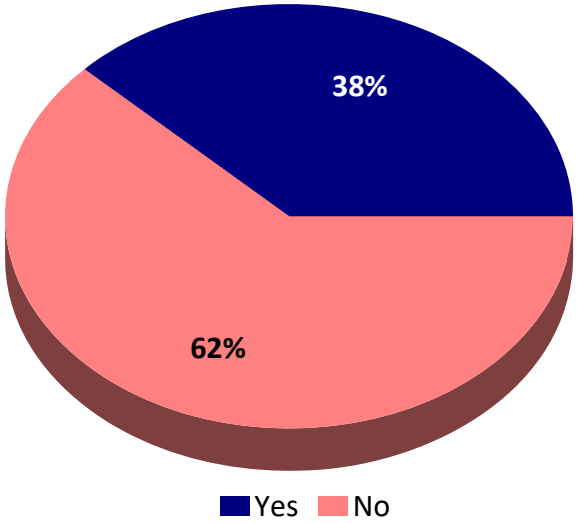
2023



2018



2020

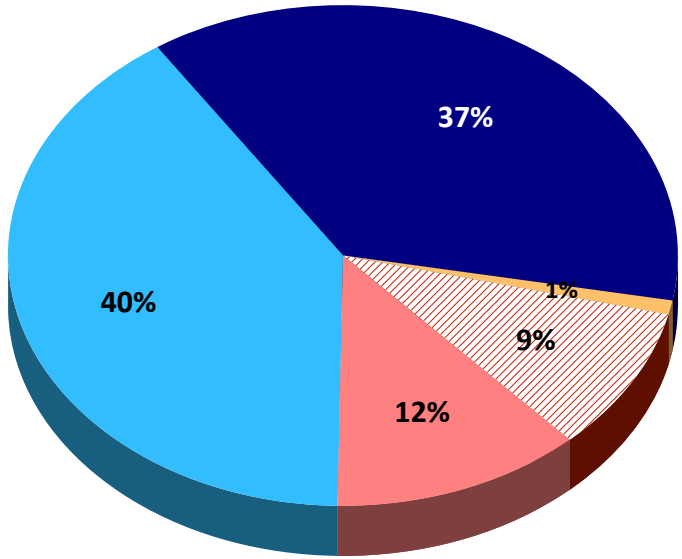


Q23a. How easy was it to contact the person you needed to reach?

by percentage of respondents who have contacted the City in the past year

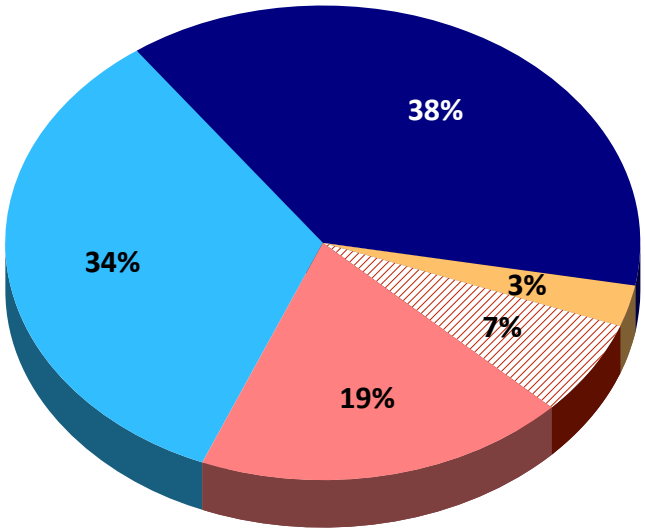
TRENDS

2023



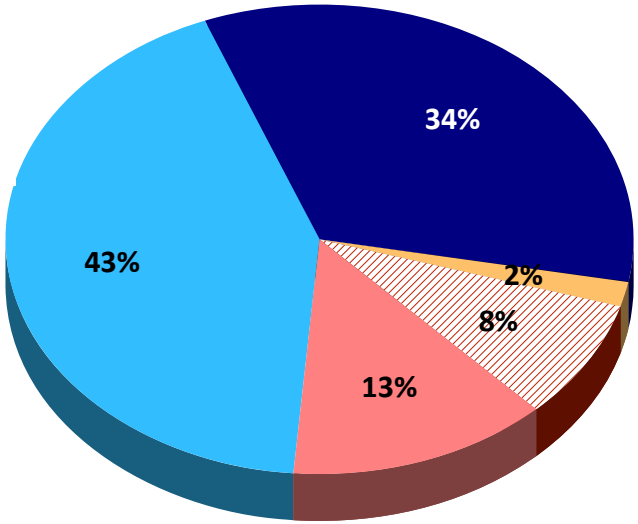
Very easy | Somewhat easy | Difficult | Very difficult | Don't know

2018



Very easy | Somewhat easy | Difficult | Very difficult | Don't know

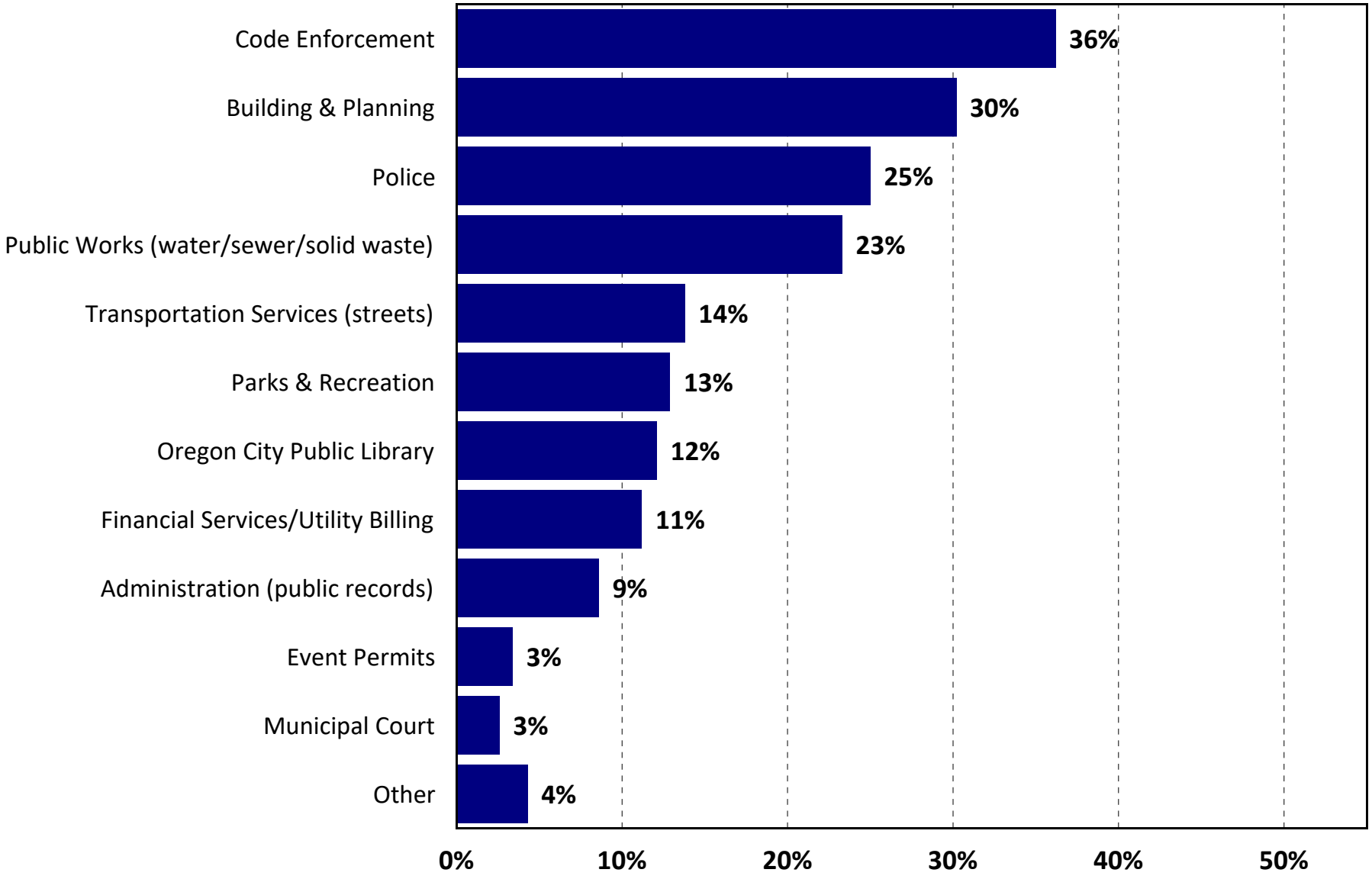
2020



Very easy | Somewhat easy | Difficult | Very difficult | Don't know

Q23b. What department did you contact?

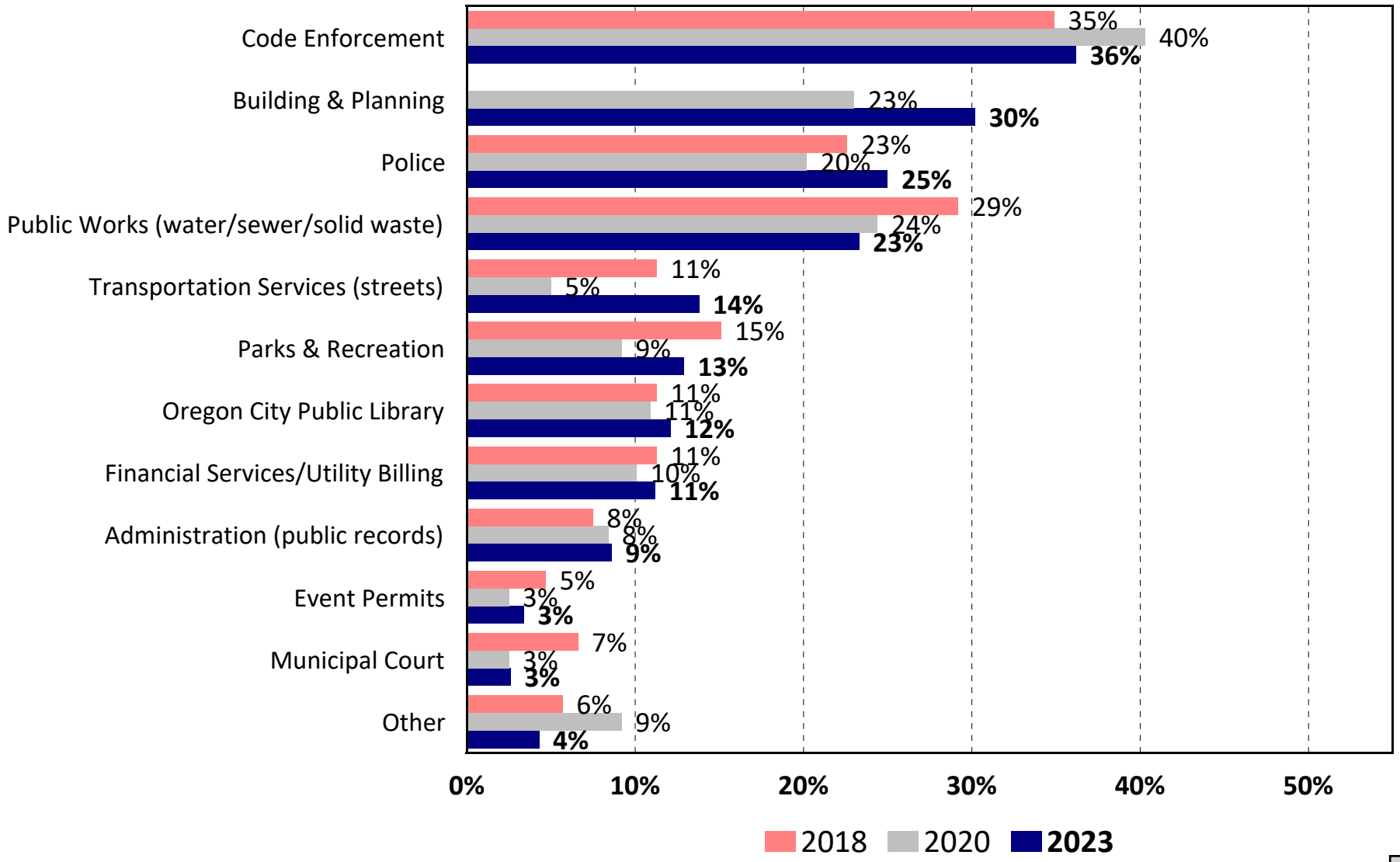
by percentage of respondents who have contacted the City in the past year
(multiple choices could be made)



TRENDS: What department did you contact?

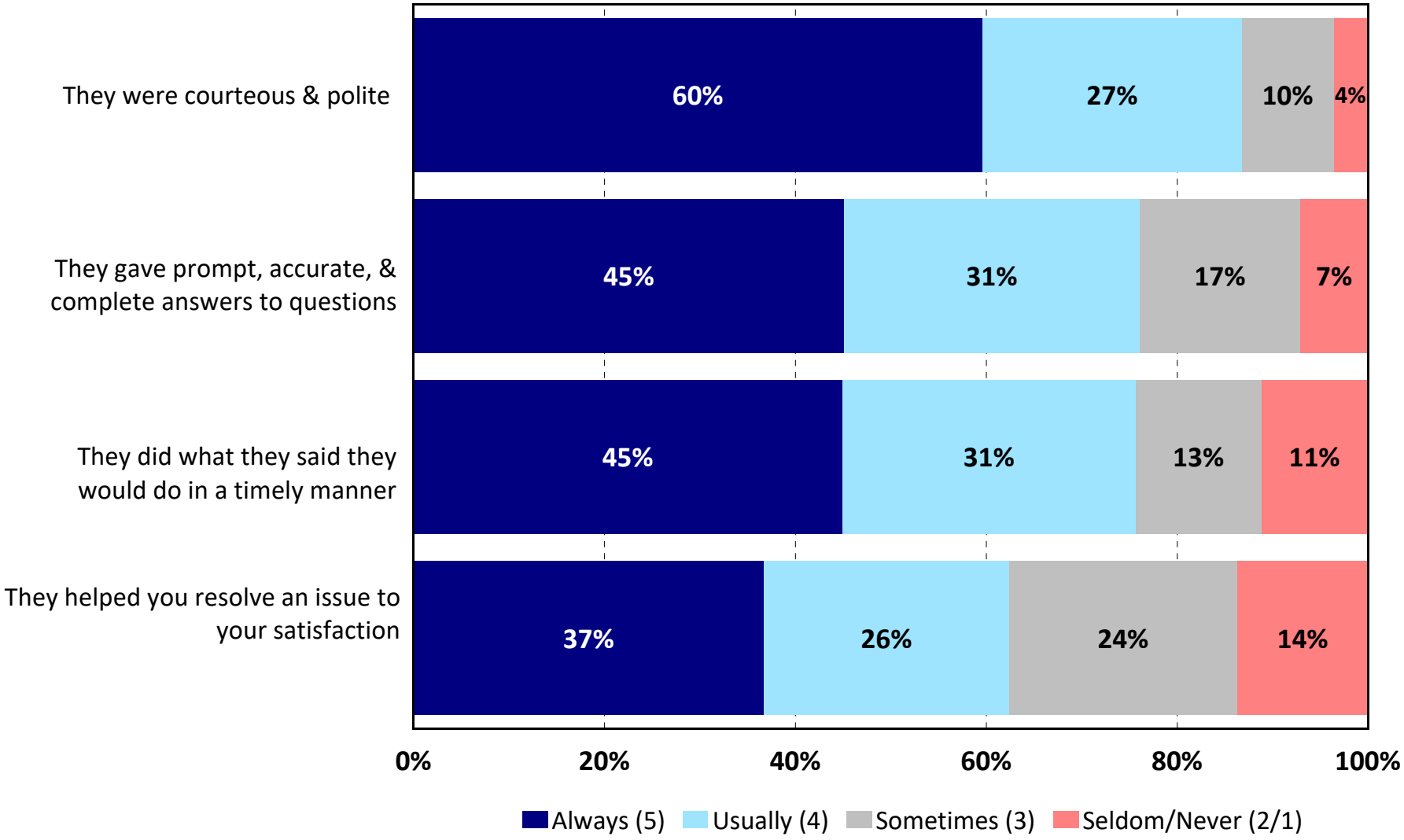
2018 to 2023

by percentage of respondents who have contacted the City in the past year (multiple choices could be made)



Q23c. Perception of the Quality of Customer Service From City Employees

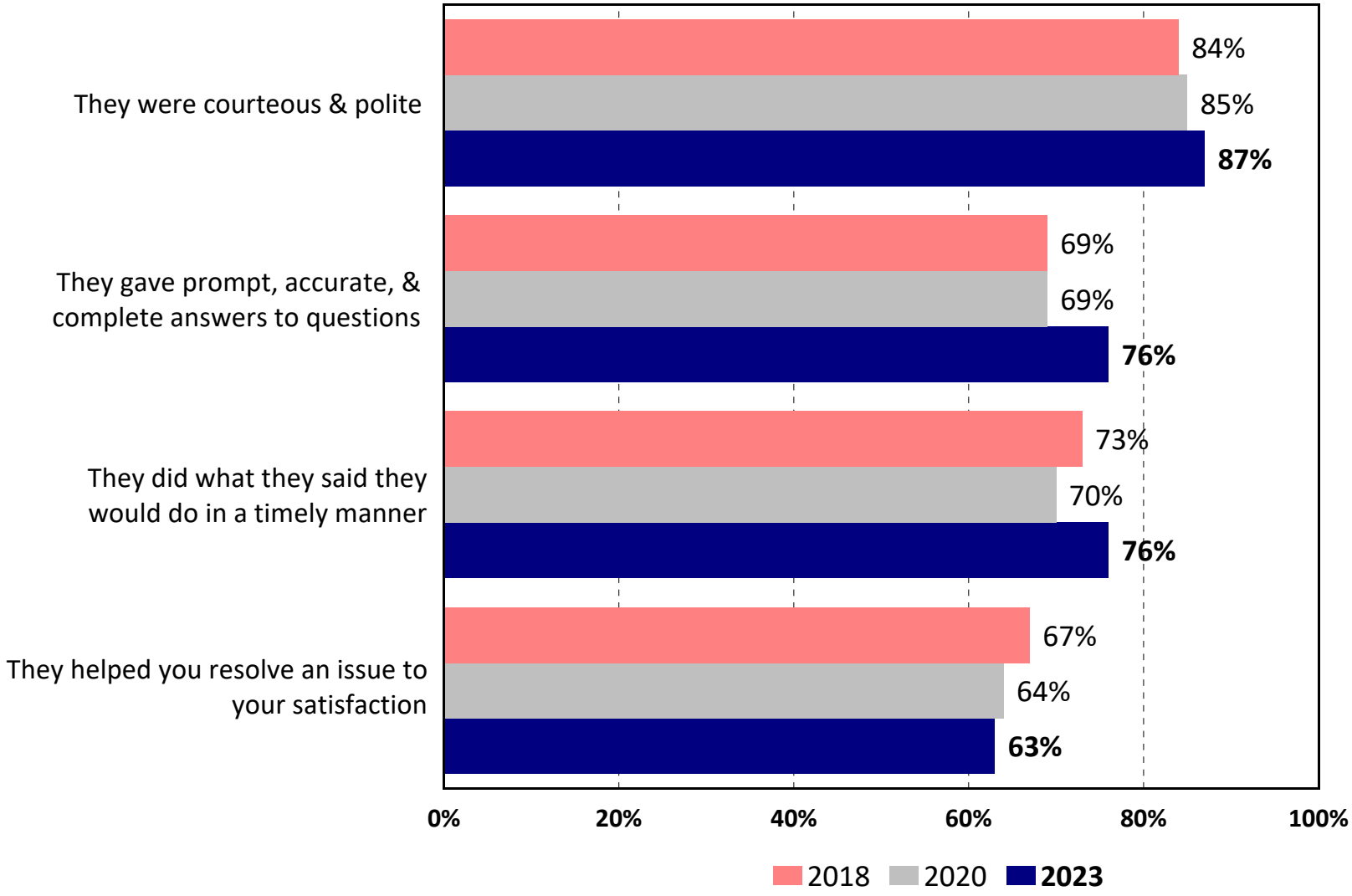
by percentage of respondents who contacted the City in the past year and rated the item as a 1 to 5 on a 5-point scale (excluding don't knows)



TRENDS: Perception of the Quality of Customer Service From City Employees

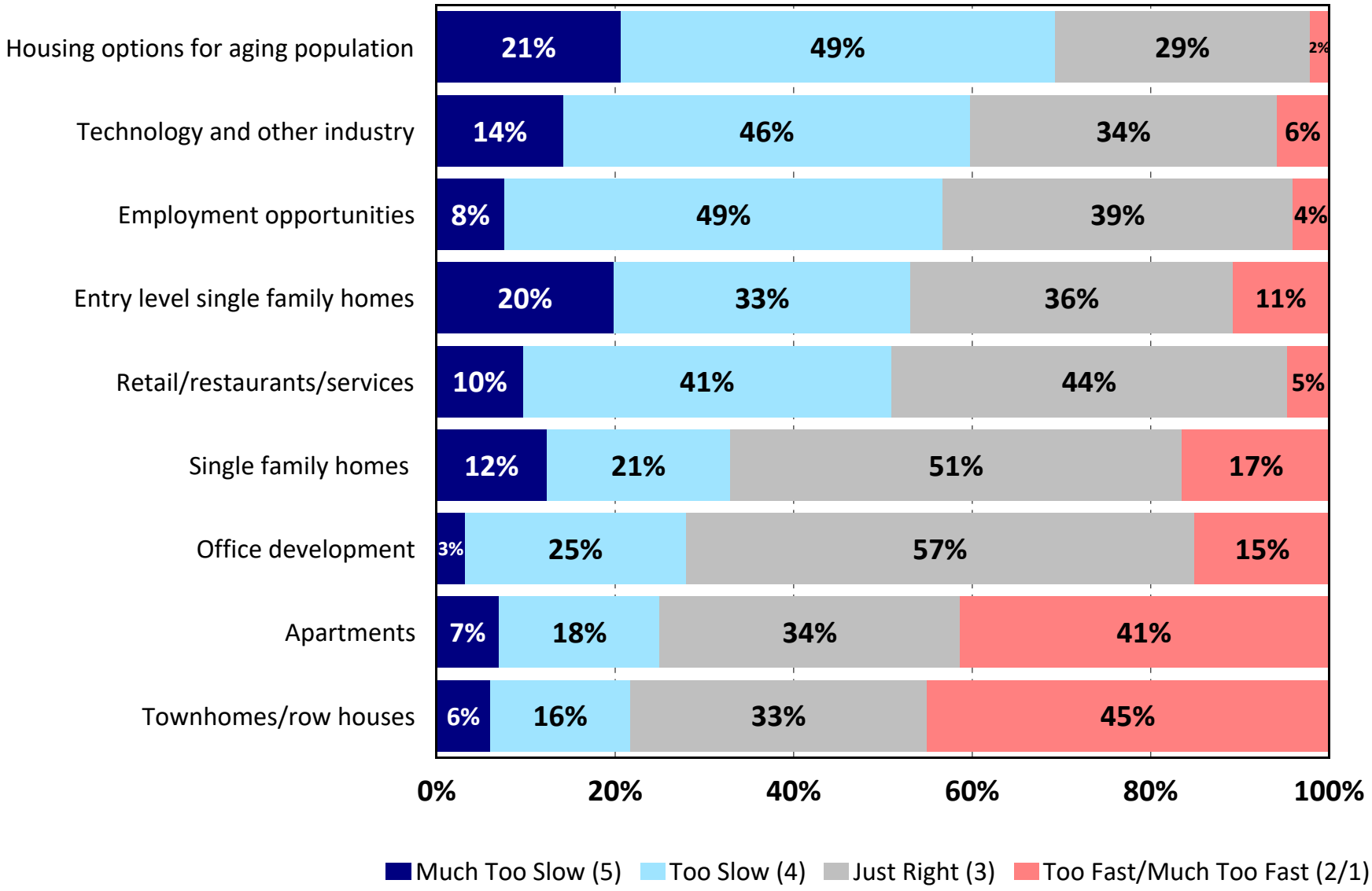
2018 to 2023

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



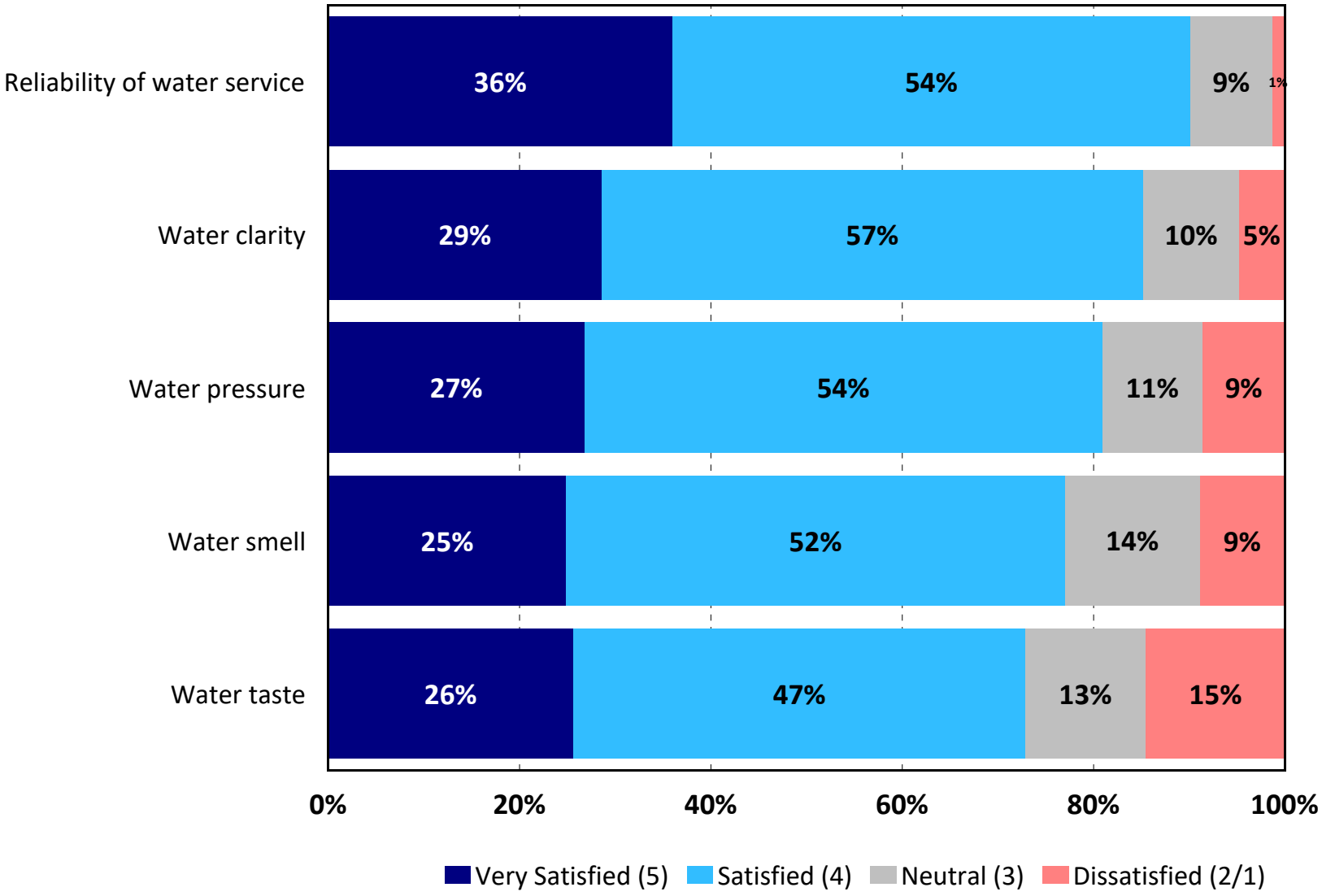
Q24. Ratings of City's Current Pace of Land Development

by percentage of respondents who rated the item as a 1 to 5 on a 5-point scale (excluding don't knows)



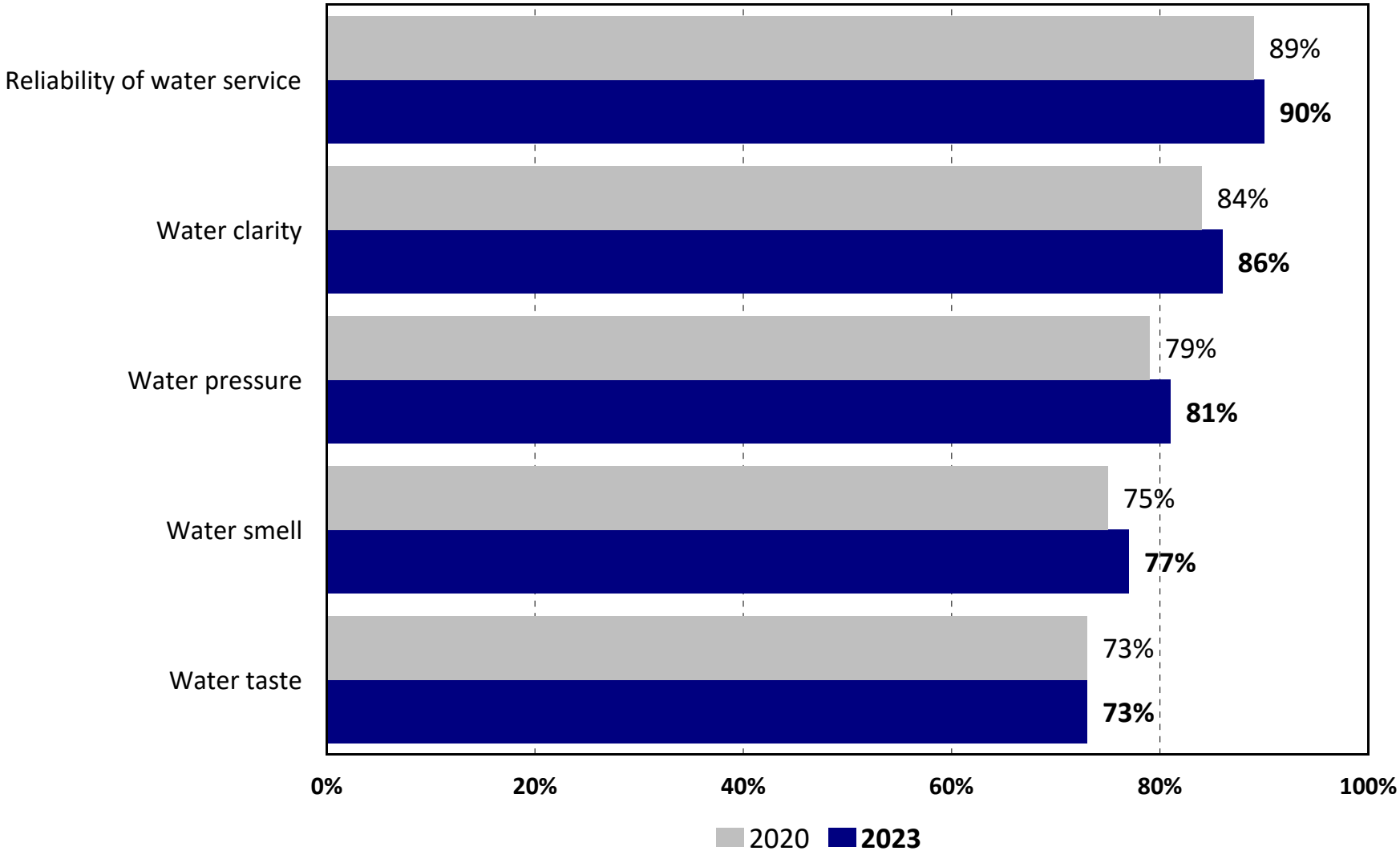
Q25. Satisfaction With Water Quality

by percentage of respondents (excluding don't knows)



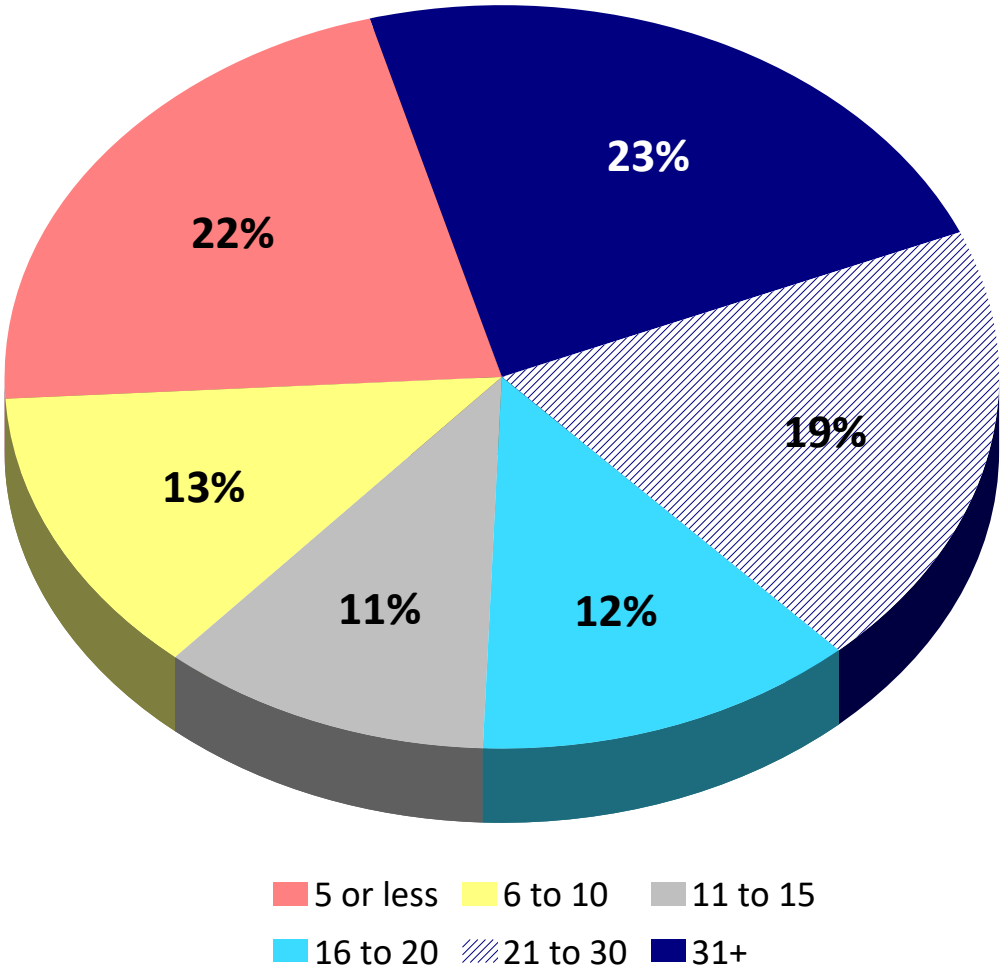
TRENDS: Satisfaction With Water Quality
2020 vs. 2023

by percentage of respondents who rated the item as a 4 or 5 on a 5-point scale (excluding don't knows)



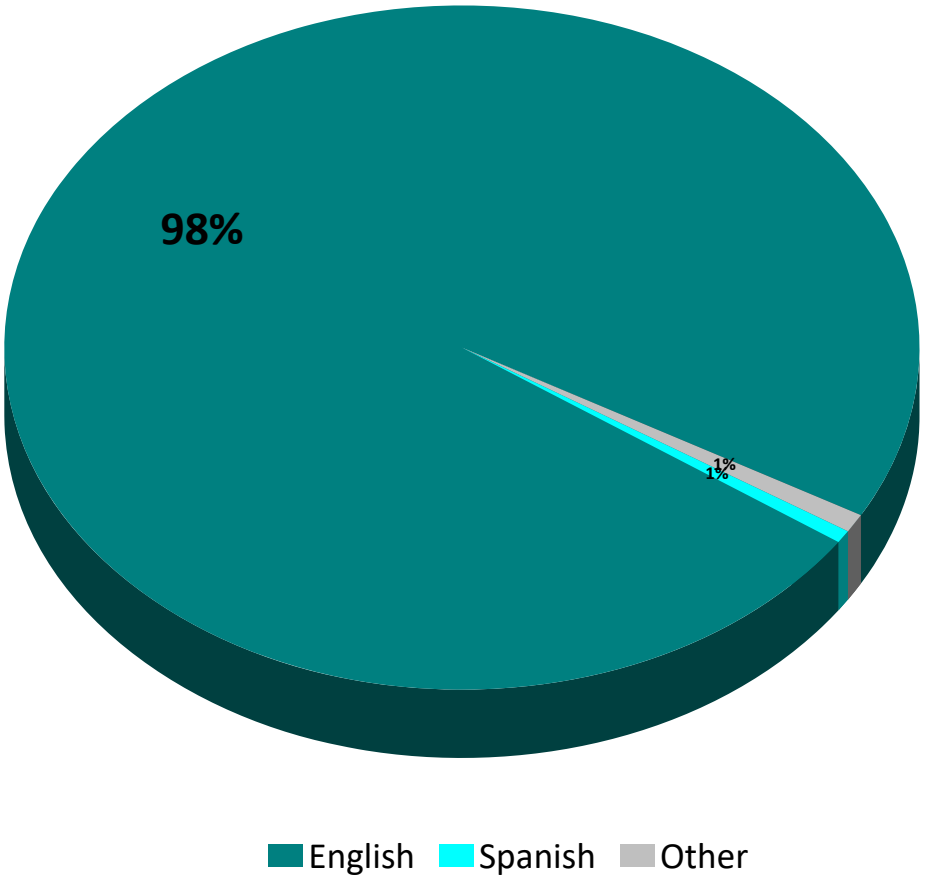
Q26. Demographics: Approximately how many years have you lived in Oregon City?

by percentage of respondents



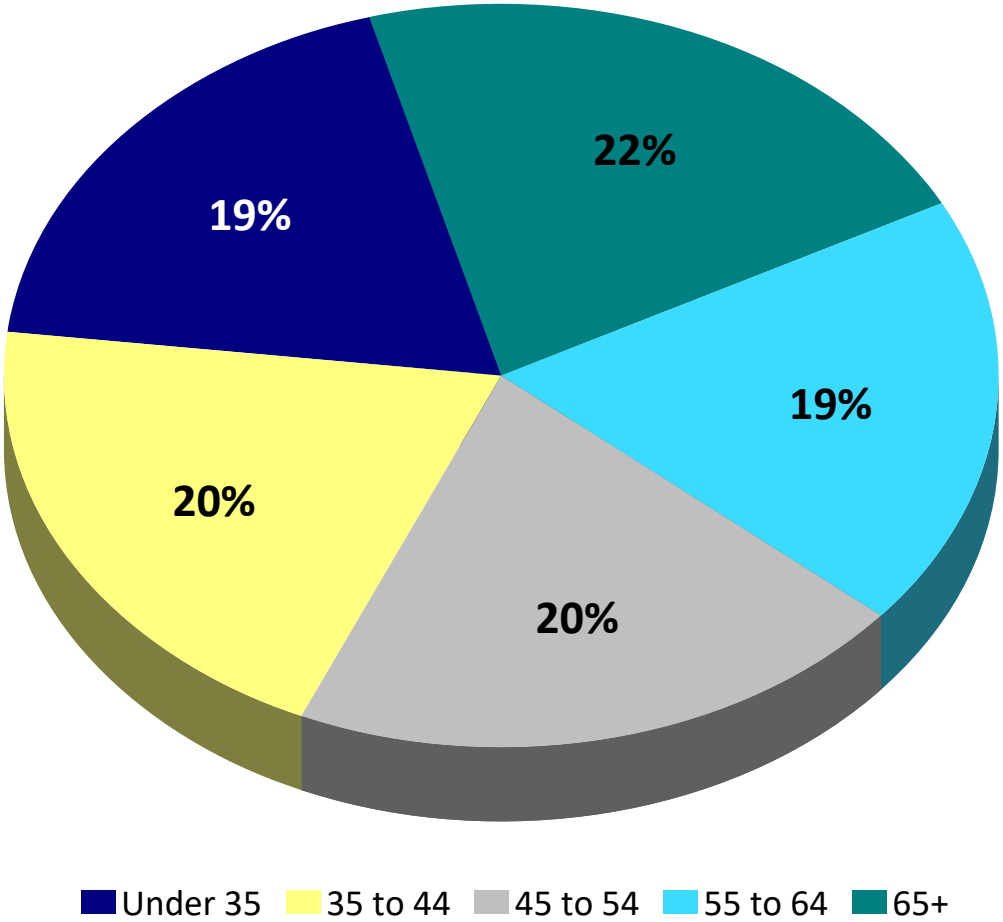
Q27. Demographics: What is the preferred language spoken in your home?

by percentage of respondents



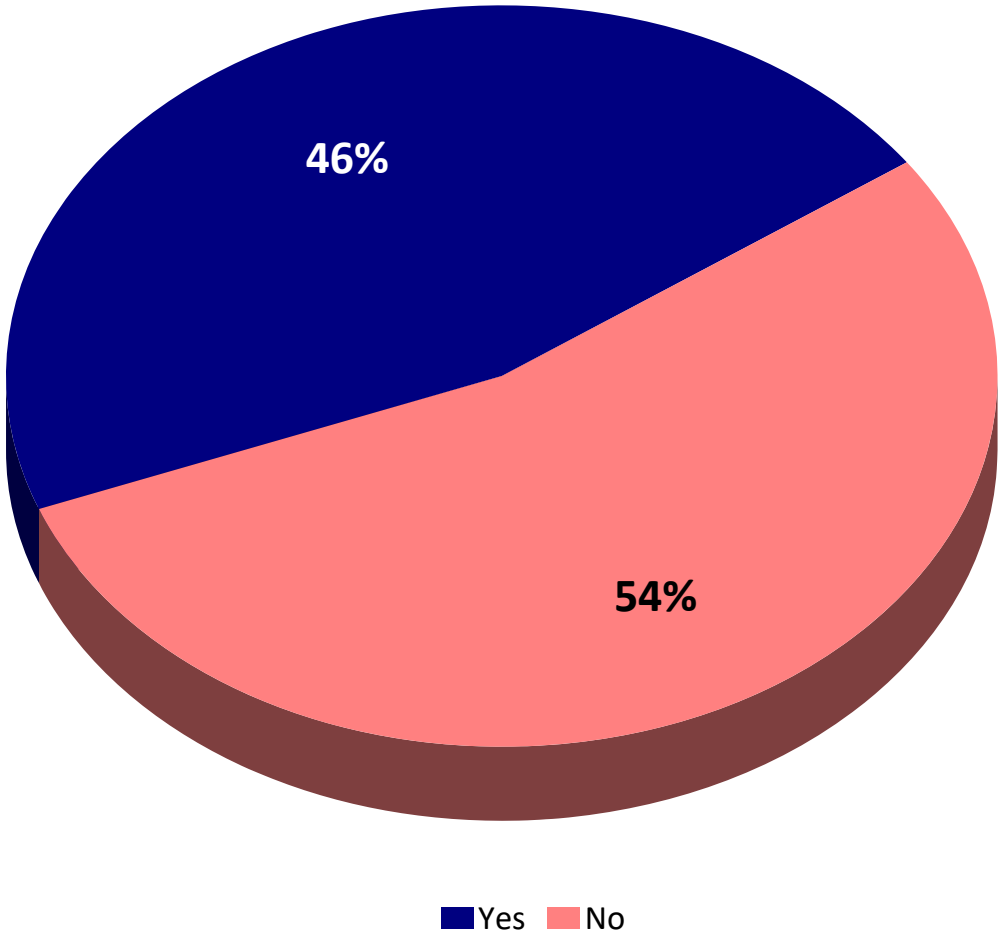
Q28. Demographics: Age of Respondent

by percentage of respondents



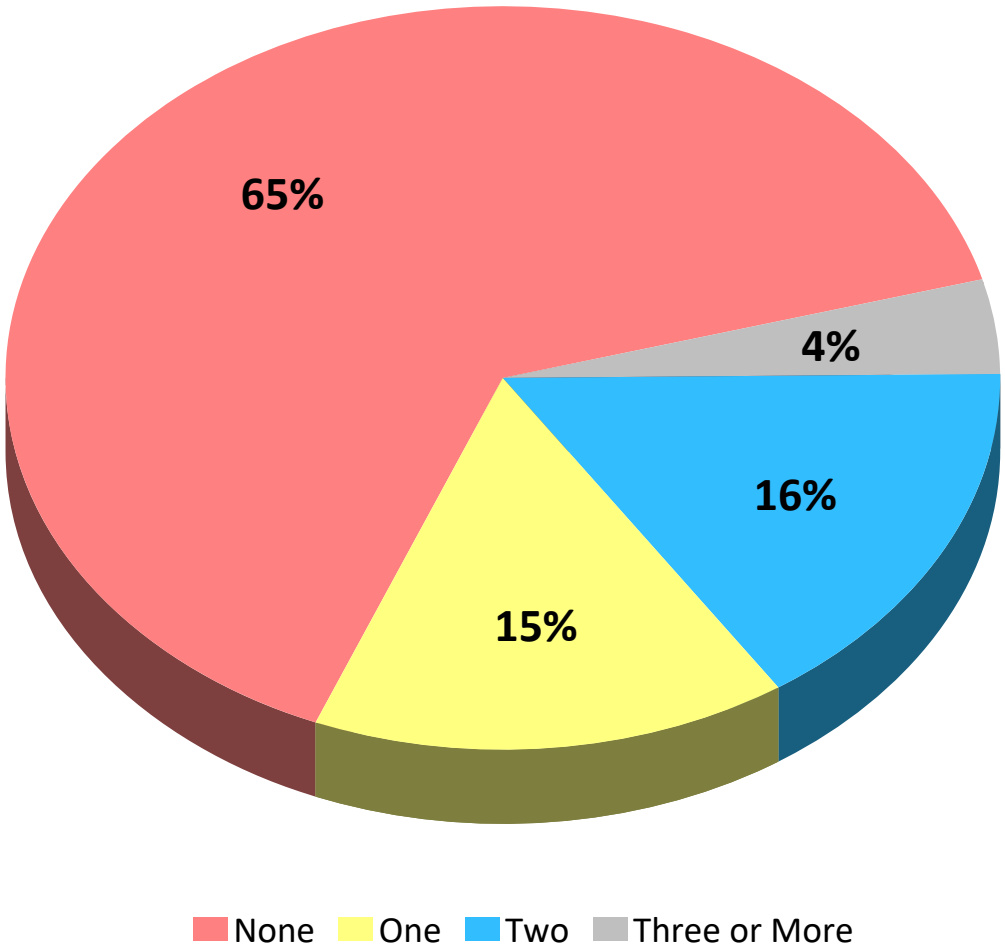
Q29. Do you work outside of Oregon City?

by percentage of respondents



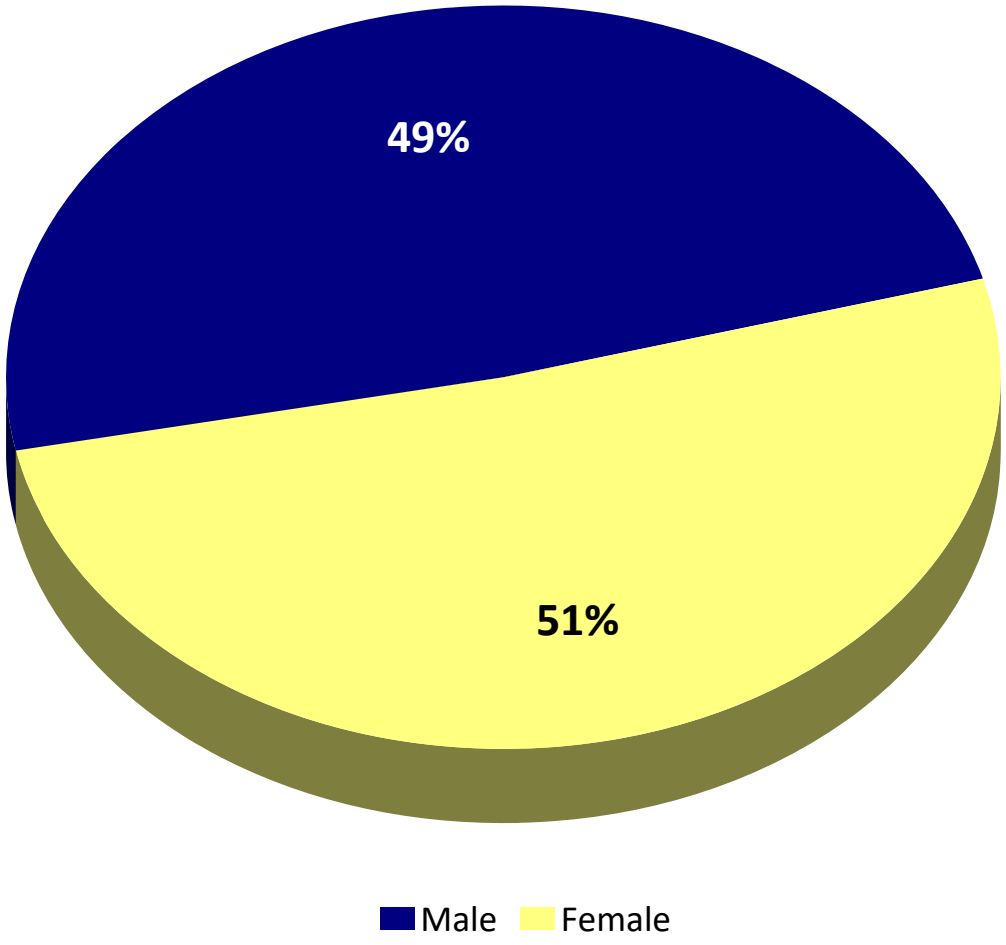
Q30. Demographics: How many children under age 18 live in your household?

by percentage of respondents



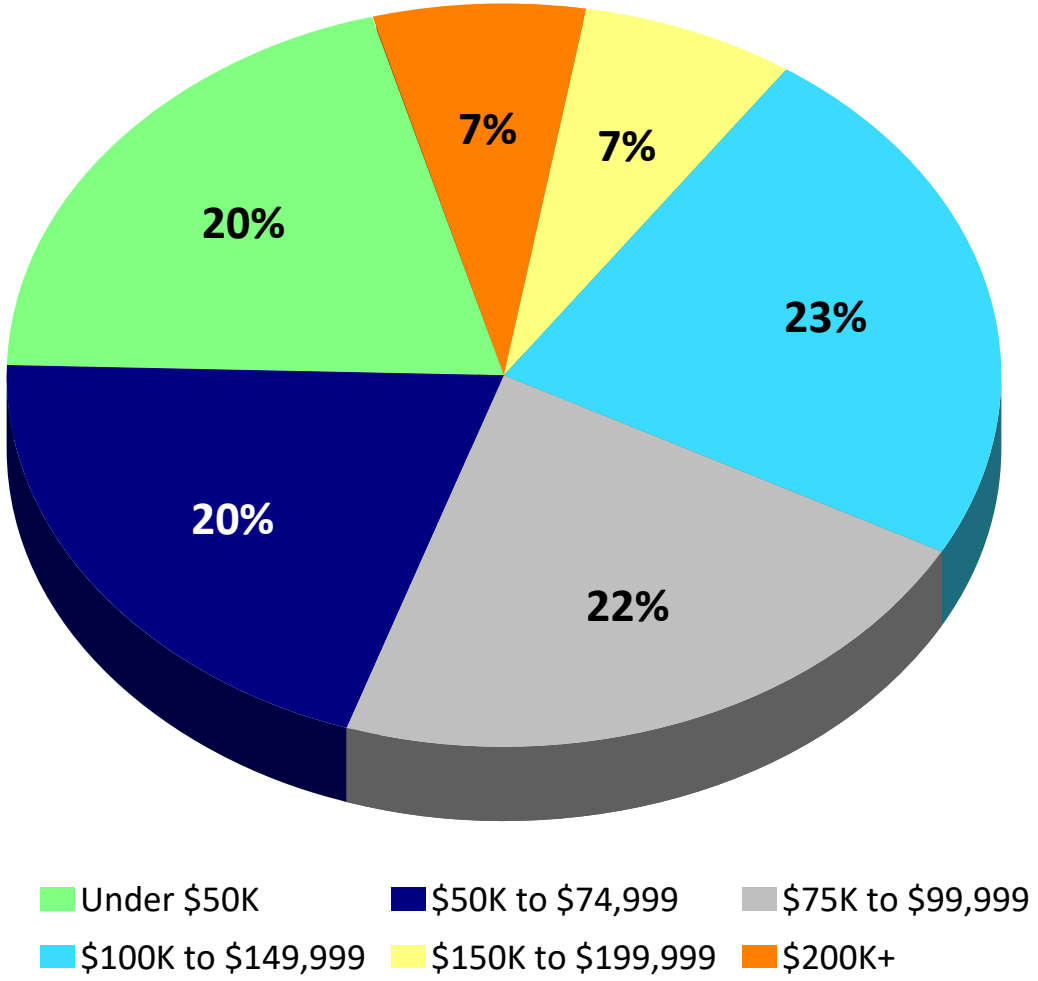
Q31. Demographics: Gender

by percentage of respondents



Q32. Demographics: Annual Household Income

by percentage of respondents



2 Benchmarking Analysis

Benchmarking Analysis

Overview

ETC Institute's *DirectionFinder®* program was originally developed in 1999 to help community leaders use statistically-valid community survey data as a tool for making better decisions. Since November 1999, the survey has been administered in more than 500 cities and counties in 49 states. Most participating communities conduct the survey on an annual or biennial basis.

This report contains benchmarking data from two sources: (1) a national survey that was administered by ETC Institute during the fall of 2021 to a random sample of more than 9,000 residents in the continental United States and (2) a regional survey that was administered by ETC Institute during the fall of 2021 to a random sample of residents living in the Northwest Region of the United States. The Northwest Region includes the states of Washington, Oregon, Idaho, and Montana.

The charts on the following pages show how the results for the City of Oregon City compare to the national average and the Northwest regional average. The blue bar shows the results for Oregon City, the red bar shows the national average, and the yellow bar shows the average for the Northwest Region.

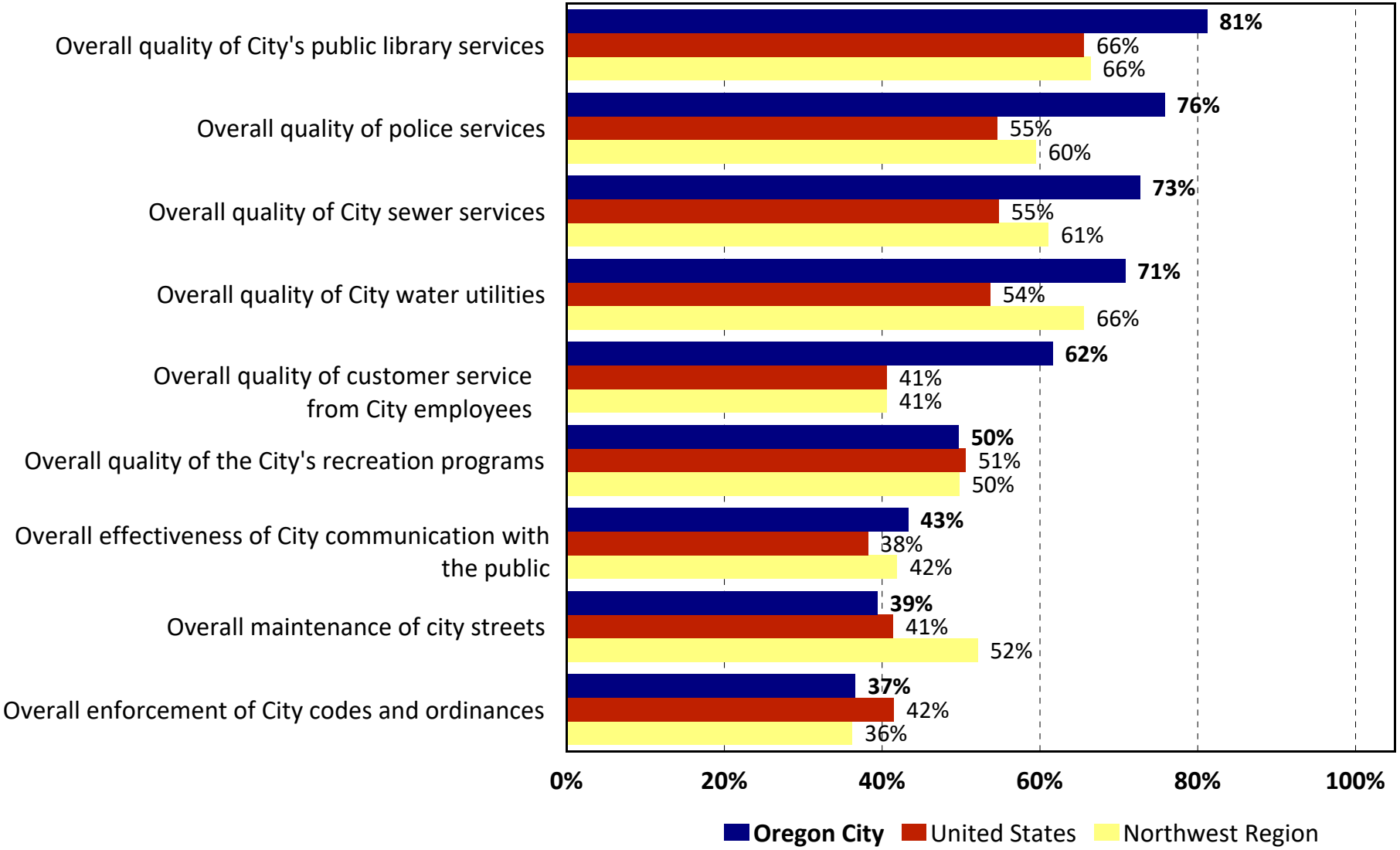
National and Regional Benchmarks

Note: The benchmarking data contained in this report is protected intellectual property. Any reproduction of the benchmarking information in this report by persons or organizations not directly affiliated with the City of Oregon City is not authorized without written consent from ETC Institute.

Overall Satisfaction with Major Categories of City Services

Oregon City vs. United States vs. Northwest Region

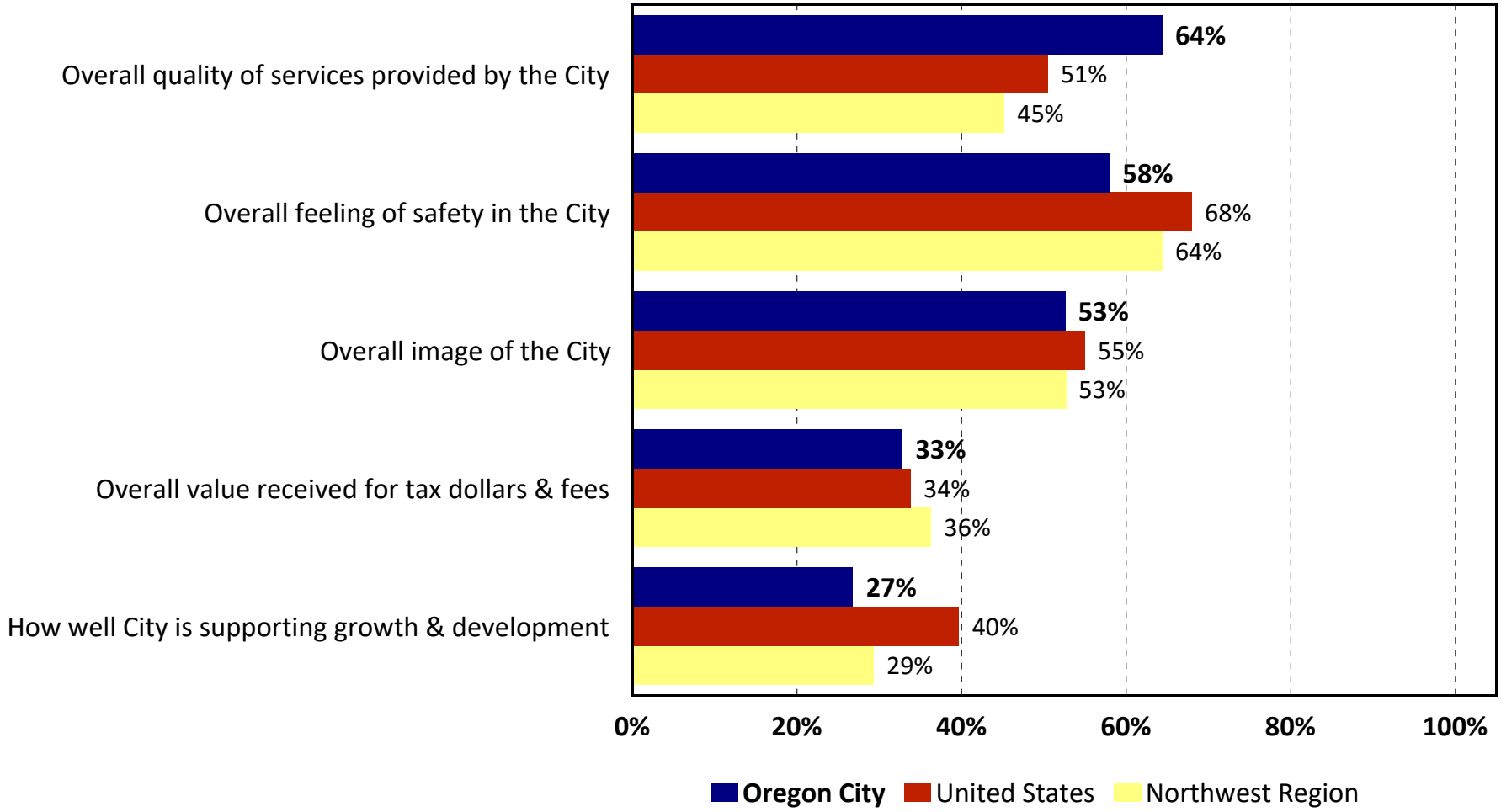
by percentage of respondents who rated the item 4 or 5 on a 5-point scale
where 5 was "very satisfied" and 1 was "very dissatisfied" (excluding don't knows)



Satisfaction with Items that Influence Perceptions of the Community

Oregon City vs. United States vs. Northwest Region

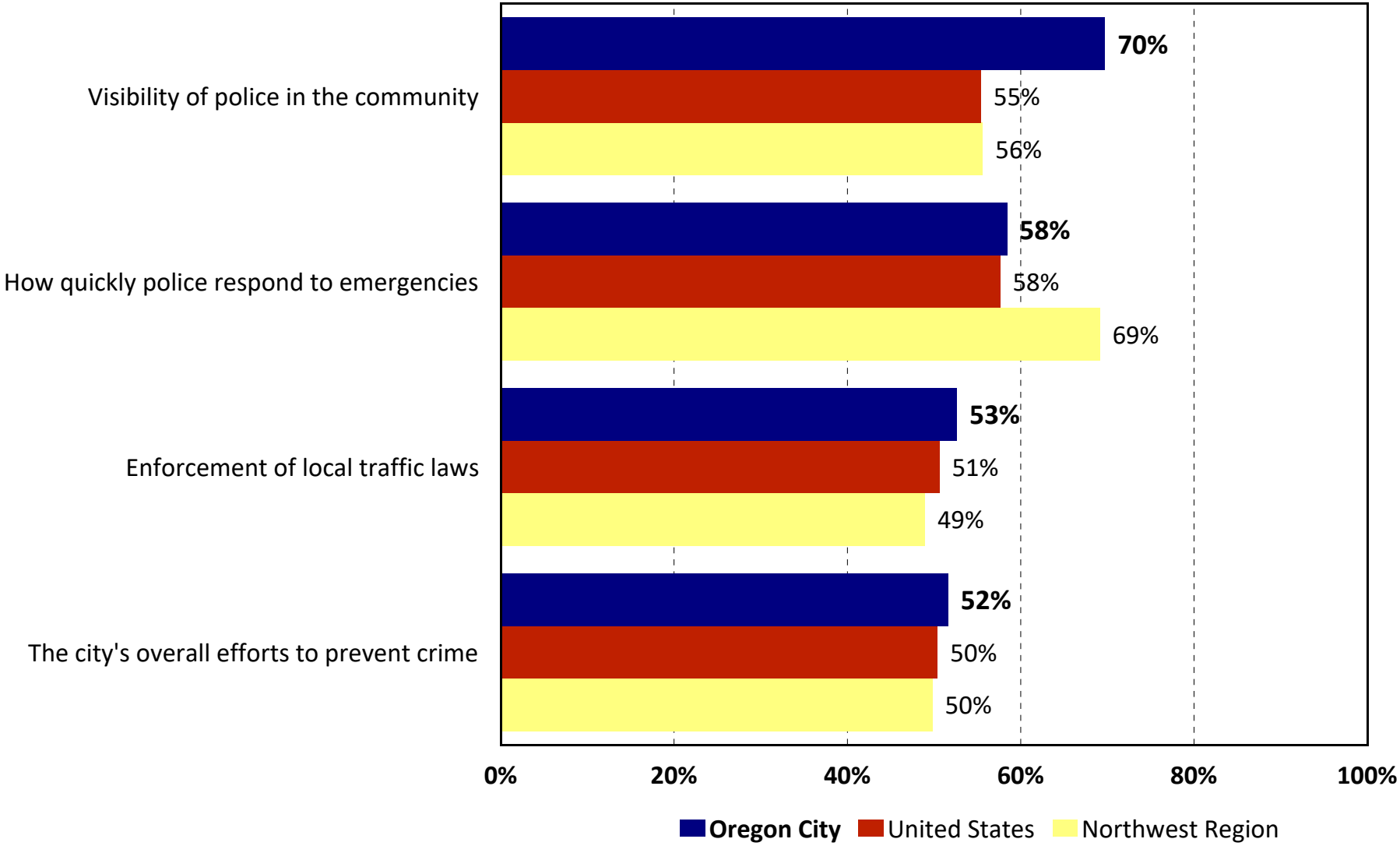
by percentage of respondents who rated the item 4 or 5 on a 5-point scale
where 5 was "very satisfied" and 1 was "very dissatisfied" (excluding don't knows)



Overall Satisfaction with Public Safety

Oregon City vs. United States vs. Northwest Region

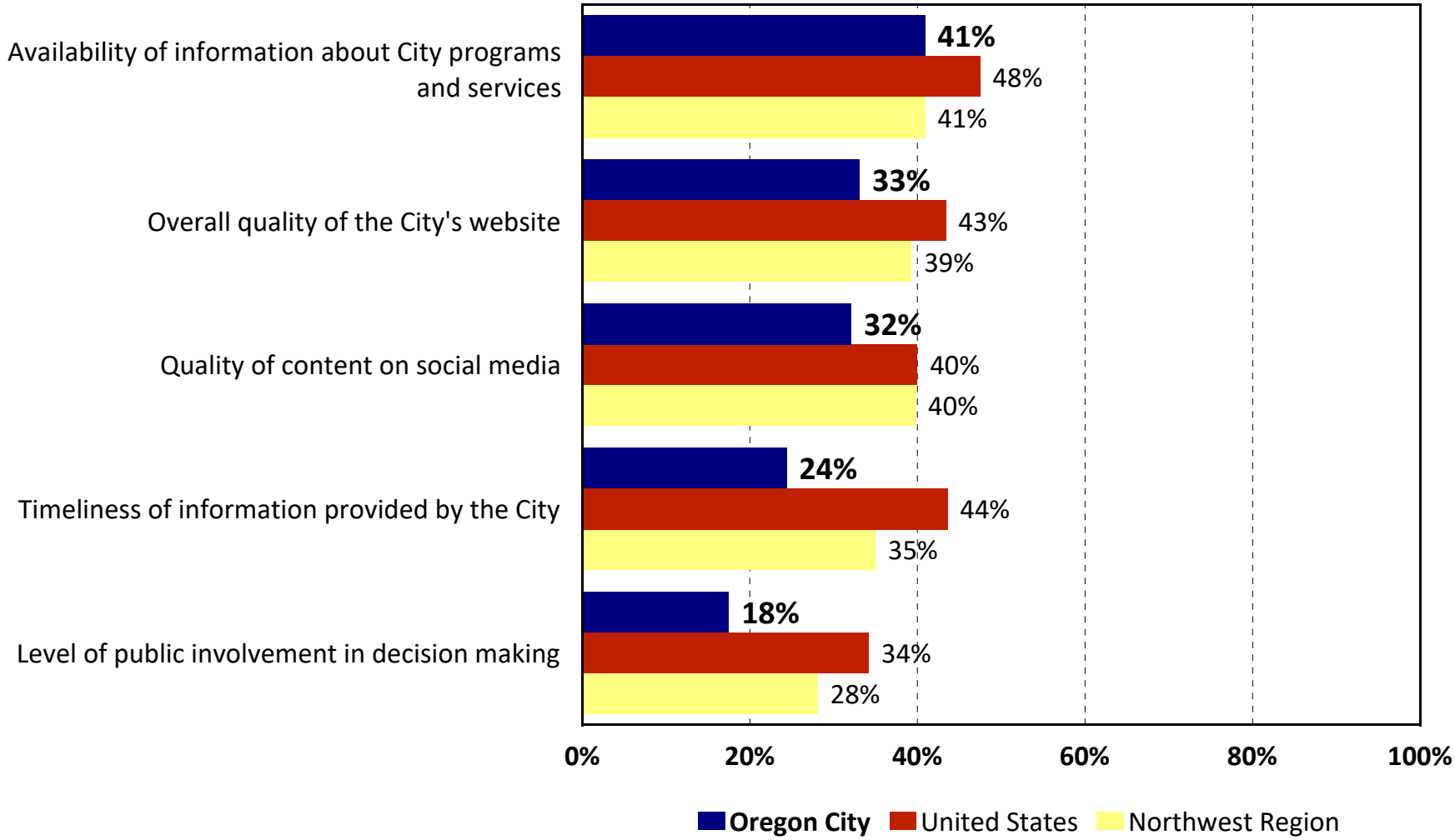
by percentage of respondents who rated the item 4 or 5 on a 5-point scale
where 5 was "very satisfied" and 1 was "very dissatisfied" (excluding don't knows)



Overall Satisfaction with Communication

Oregon City vs. United States vs. Northwest Region

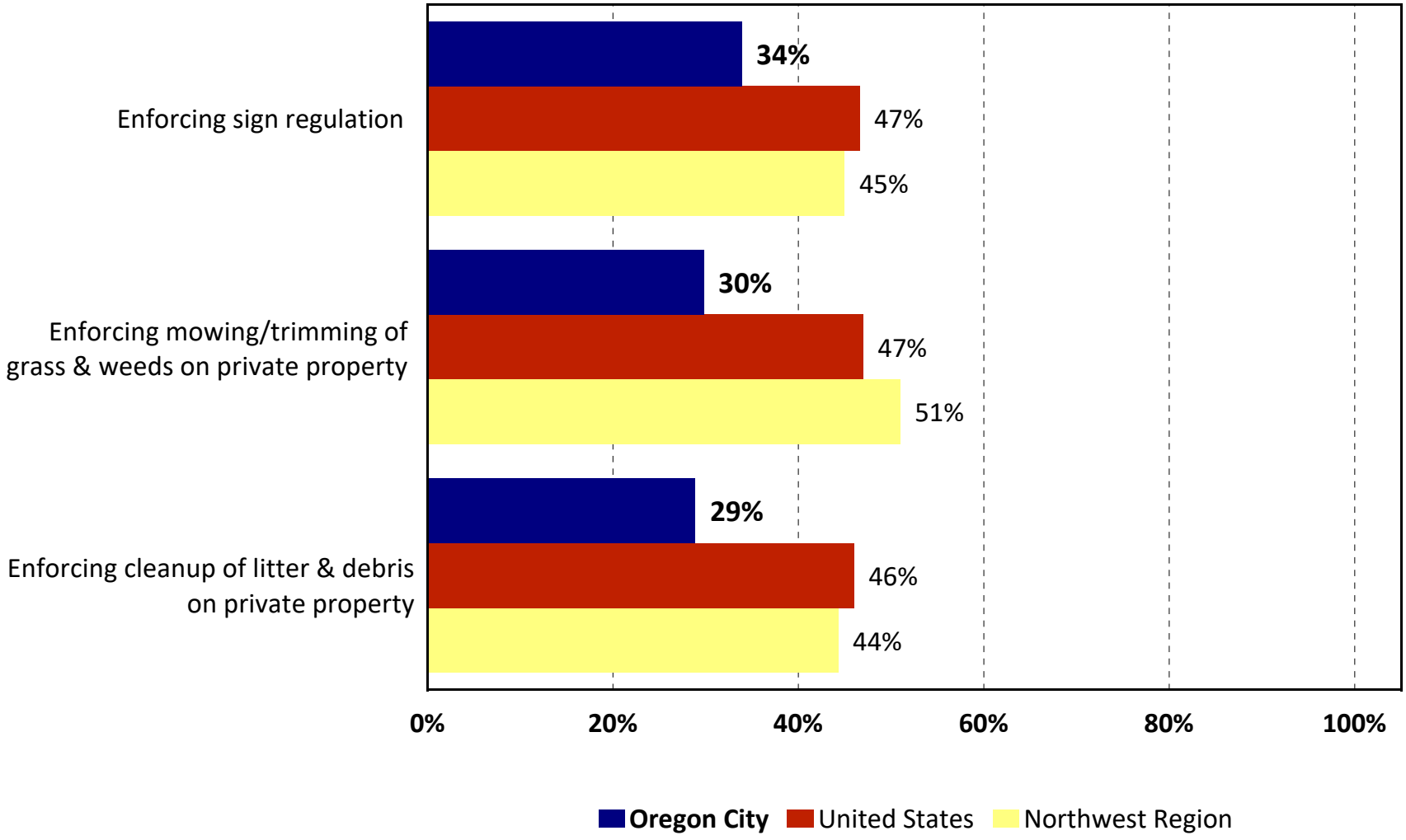
by percentage of respondents who rated the item 4 or 5 on a 5-point scale
where 5 was "very satisfied" and 1 was "very dissatisfied" (excluding don't knows)



Overall Satisfaction with Code Enforcement

Oregon City vs. United States vs. Northwest Region

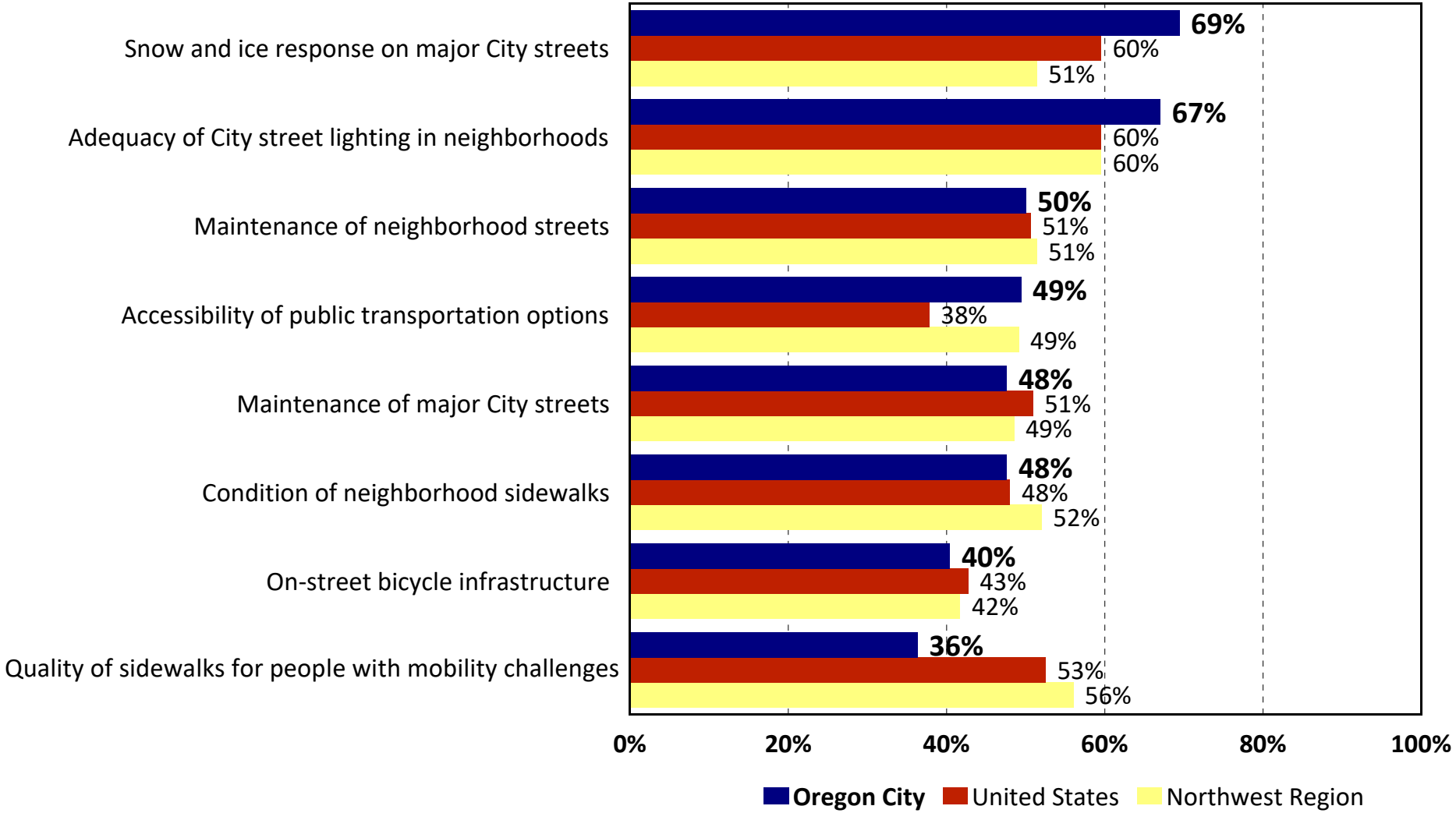
by percentage of respondents who rated the item 4 or 5 on a 5-point scale
where 5 was "very satisfied" and 1 was "very dissatisfied" (excluding don't knows)



Overall Satisfaction with Transportation and Infrastructure

Oregon City vs. United States vs. Northwest Region

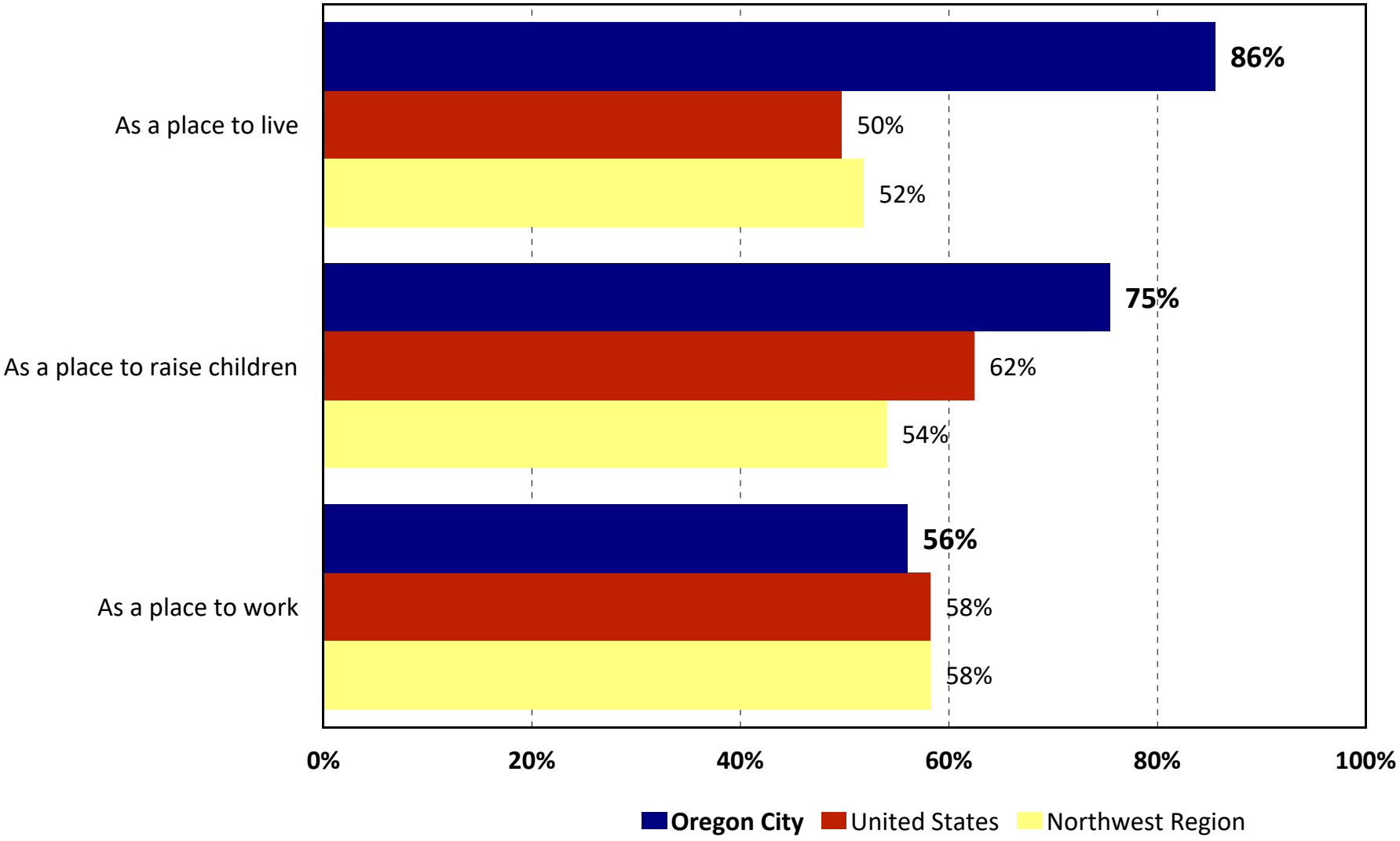
by percentage of respondents who rated the item 4 or 5 on a 5-point scale
where 5 was "very satisfied" and 1 was "very dissatisfied" (excluding don't knows)



Overall Ratings of the City

Oregon City vs. United States vs. Northwest Region

by percentage of respondents who rated the item 4 or 5 on a 5-point scale where 5 was "excellent" and 1 was "poor" (excluding don't knows)



3 Importance-Satisfaction Analysis

Importance-Satisfaction Analysis

Overview

Today, community leaders have limited resources which need to be targeted to activities that are of the most benefit to their citizens. Two of the most important criteria for decision making are (1) to target resources toward services of the highest importance to citizens; and (2) to target resources toward those services where citizens are the least satisfied.

The Importance-Satisfaction (I-S) rating is a unique tool that allows public officials to better understand both of these highly important decision-making criteria for each of the services they are providing. The Importance-Satisfaction (I-S) rating is based on the concept that public agencies will maximize overall customer satisfaction by emphasizing improvements in those areas where the level of satisfaction is relatively low, and the perceived importance of the service is relatively high.

The rating is calculated by summing the percentage of responses for items selected as the first, second, and third most important services for the City to emphasize over the next two years. The sum is then multiplied by 1 minus the percentage of respondents who indicated they were positively satisfied with the City's performance in the related area (the sum of the ratings of 4 and 5 on a 5-point scale excluding "don't know" responses). "Don't know" responses are excluded from the calculation to ensure the satisfaction ratings among service categories are comparable.

I-S Rating = Importance x (1-Satisfaction)

Example of the Calculation

Respondents were asked to identify the major categories of City services that were most important to emphasize over the next two years. More than half (57.9%) of the respondent households selected *"overall maintenance of City streets"* as one of the most important services for the City to emphasize.

With regard to satisfaction, 39.4% of respondents surveyed rated *"overall maintenance of City streets"* as a "4" or "5" on a 5-point scale (where "5" means "Very Satisfied") excluding "don't know" responses. The I-S rating was calculated by multiplying the sum of the most important percentages by one minus the sum of the satisfaction percentages. In this example, 57.9% was multiplied by 60.6% (1-0.394). This calculation yielded an I-S rating of 0.3509, which ranked first out of thirteen major categories of City services analyzed.

Importance-Satisfaction Analysis

The maximum rating is 1.00 and would be achieved when 100% of the respondents select an item as one of their top three choices of importance and 0% indicate they are positively satisfied with the delivery of the service.

The lowest rating is 0.00 and could be achieved under either of the following two situations:

- If 100% of the respondents were positively satisfied with the delivery of the service
- If none (0%) of the respondents selected the service as one of the three most important areas.

Interpreting the Ratings

Ratings that are greater than or equal to 0.20 identify areas that should receive significantly more emphasis over the next two years. Ratings from 0.10 to 0.20 identify service areas that should receive increased emphasis. Ratings less than 0.10 should continue to receive the current level of emphasis.

- *Definitely Increase* Emphasis (I-S > 0.20)
- *Increase* Current Emphasis (I-S = 0.10 - 0.20)
- *Maintain* Current Emphasis (I-S < 0.10)

Tables showing the results for the City of Oregon City are provided on the following pages.

2023 Importance-Satisfaction Rating
Oregon City, OR
Major Categories of City Services

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
Very High Priority (IS >.20)						
Overall maintenance of city streets	58%	1	39%	10	0.3509	1
Overall effectiveness of City economic development efforts	33%	4	29%	12	0.2309	2
High Priority (IS .10-.20)						
Overall enforcement of City codes and ordinances	25%	5	37%	11	0.1560	3
Overall effectiveness of City communication with public	24%	6	43%	8	0.1361	4
Overall quality of City parks/trails/open space	33%	3	66%	5	0.1115	5
Overall quality of the City's recreation programs	21%	7	50%	7	0.1051	6
Medium Priority (IS <.10)						
Overall quality of permit process	11%	9	25%	13	0.0840	7
Overall quality of police services	33%	2	76%	2	0.0808	8
Overall quality of City water utilities	13%	8	71%	4	0.0380	9
Overall quality of customer service from City employees	5%	11	62%	6	0.0204	10
Overall quality of Municipal Court Services	3%	12	42%	9	0.0179	11
Overall quality of City sewer services	7%	10	73%	3	0.0177	12
Overall quality of City's public library services	2%	13	81%	1	0.0028	13

Note: The I-S Rating is calculated by multiplying the "Most Important" % by (1-'Satisfaction' %)

Most Important %: The "Most Important" percentage represents the sum of the first, second, and third most important responses for each item. Respondents were asked to identify the items they thought should be the City's top priorities.

Satisfaction %: The "Satisfaction" percentage represents the sum of the ratings "5" and "4" excluding 'don't knows.' Respondents ranked their level of satisfaction with each of the items on a scale of 5 to 1 with "5" being Very Satisfied and "1" being Very Dissatisfied.

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2023 Importance-Satisfaction Rating
Oregon City, OR
Parks and Recreation

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
High Priority (IS .10-.20)						
Quantity of city trails	20%	3	50%	6	0.1002	1
Medium Priority (IS <.10)						
Quality of recreational areas for dogs	16%	4	39%	11	0.0978	2
Appearance and maintenance of existing City parks	29%	1	67%	3	0.0960	3
Quality of the city's swimming pool	15%	5	47%	7	0.0797	4
Quality of services for fees assessed with recreation programming	13%	7	41%	10	0.0770	5
Quality of facilities	26%	2	70%	2	0.0769	6
Quality of outdoor athletic fields	13%	6	54%	5	0.0615	7
Access to city parks for persons with disabilities	11%	8	45%	9	0.0604	8
Quality of the End of the Oregon Trail	10%	9	45%	8	0.0567	9
Other	6%	12	0%	12	0.0560	10
Quality of the Pioneer Community Center	7%	11	55%	4	0.0291	11
Proximity of parks to your home	7%	10	76%	1	0.0162	12

Note: The I-S Rating is calculated by multiplying the "Most Important" % by (1-'Satisfaction' %)

Most Important %: The "Most Important" percentage represents the sum of the first and second most important responses for each item. Respondents were asked to identify the items they thought should be the City's top priorities.

Satisfaction %: The "Satisfaction" percentage represents the sum of the ratings "5" and "4" excluding 'don't knows.' Respondents ranked their level of satisfaction with each of the items on a scale of 5 to 1 with "5" being Very Satisfied and "1" being Very Dissatisfied.

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2023 Importance-Satisfaction Rating
Oregon City, OR
Public Safety

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
Very High Priority (IS >.20)						
Response to issues with transients	58%	1	21%	9	0.4588	1
High Priority (IS .10-.20)						
Response to drug control	21%	3	25%	8	0.1546	2
The city's overall efforts to prevent crime	29%	2	52%	4	0.1389	3
Response to property crime	19%	4	32%	7	0.1314	4
Medium Priority (IS <.10)						
Level of community outreach	13%	7	40%	6	0.0751	5
How quickly police respond to emergencies	13%	6	58%	2	0.0545	6
Visibility of police in the community	17%	5	70%	1	0.0527	7
Enforcement of local traffic laws	10%	8	53%	3	0.0488	8
Parking enforcement services	3%	9	46%	5	0.0136	9

Note: The I-S Rating is calculated by multiplying the "Most Important" % by (1-'Satisfaction' %)

Most Important %: The "Most Important" percentage represents the sum of the first and second most important responses for each item. Respondents were asked to identify the items they thought should be the City's top priorities.

Satisfaction %: The "Satisfaction" percentage represents the sum of the ratings "5" and "4" excluding 'don't knows.' Respondents ranked their level of satisfaction with each of the items on a scale of 5 to 1 with "5" being Very Satisfied and "1" being Very Dissatisfied.

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2023 Importance-Satisfaction Rating
Oregon City, OR
Code Enforcement

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
Very High Priority (IS >.20)						
Enforcing cleanup of litter & debris on private property	66%	1	29%	4	0.4721	1
Enforcing codes designed to protect public safety and health	61%	2	40%	1	0.3672	2
High Priority (IS .10-.20)						
Enforcing mowing/trimming of grass & weeds on private property	23%	3	30%	3	0.1615	3
Enforcing sign regulation	17%	4	34%	2	0.1130	4

Note: The I-S Rating is calculated by multiplying the "Most Important" % by (1-'Satisfaction' %)

Most Important %:

The "Most Important" percentage represents the sum of the first and second most important responses for each item. Respondents were asked to identify the items they thought should be the City's top priorities.

Satisfaction %:

The "Satisfaction" percentage represents the sum of the ratings "5" and "4" excluding 'don't knows.' Respondents ranked their level of satisfaction with each of the items on a scale of 5 to 1 with "5" being Very Satisfied and "1" being Very Dissatisfied.

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2023 Importance-Satisfaction Rating
Oregon City, OR
Transportation and Infrastructure

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
Very High Priority (IS >.20)						
Maintenance of major City streets	45%	1	48%	7	0.2332	1
High Priority (IS .10-.20)						
Maintenance of neighborhood streets	33%	2	50%	4	0.1635	2
Traffic calming measures in neighborhoods	18%	4	36%	11	0.1164	3
Medium Priority (IS <.10)						
Availability of safe pedestrian ways on major streets & routes	19%	3	49%	6	0.0975	4
Condition of neighborhood sidewalks	14%	5	48%	8	0.0723	5
Quality of sidewalks for people with mobility challenges	8%	10	36%	12	0.0535	6
Availability of safe pedestrian ways in neighborhoods	10%	6	53%	3	0.0486	7
Alternative means of transportation	8%	11	44%	9	0.0437	8
Accessibility of public transportation options	8%	9	49%	5	0.0425	9
Adequacy of City street lighting in neighborhoods	10%	7	67%	2	0.0330	10
Snow and ice response on major City streets	8%	8	69%	1	0.0257	11
On-street bicycle infrastructure	4%	12	40%	10	0.0244	12

Note: The I-S Rating is calculated by multiplying the "Most Important" % by (1-'Satisfaction' %)

Most Important %: The "Most Important" percentage represents the sum of the first and second most important responses for each item. Respondents were asked to identify the items they thought should be the City's top priorities.

Satisfaction %: The "Satisfaction" percentage represents the sum of the ratings "5" and "4" excluding 'don't knows.' Respondents ranked their level of satisfaction with each of the items on a scale of 5 to 1 with "5" being Very Satisfied and "1" being Very Dissatisfied.

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2023 Importance-Satisfaction Rating
Oregon City, OR
Public Library Services

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
High Priority (IS .10-.20)						
Events for seniors	19%	2	45%	10	0.1060	1
Medium Priority (IS <.10)						
Outreach-programs and/or services in the community	16%	5	41%	11	0.0922	2
Events for children	16%	4	48%	9	0.0826	3
Events for teens	13%	7	41%	12	0.0796	4
Library as a hub of community information	15%	6	52%	6	0.0707	5
Events for adults	13%	8	51%	7	0.0641	6
Selection of digital resources available online	18%	3	68%	3	0.0574	7
Selection of physical resources available	20%	1	78%	1	0.0431	8
Ease of booking meeting rooms	4%	11	49%	8	0.0196	9
Selection of reference and research tools	5%	10	62%	4	0.0190	10
Access to computers & library Wi-Fi	6%	9	68%	2	0.0178	11
Reader's Advisory (help finding something to read)	2%	12	56%	5	0.0093	12

Note: The I-S Rating is calculated by multiplying the "Most Important" % by (1-'Satisfaction' %)

Most Important %: The "Most Important" percentage represents the sum of the first and second most important responses for each item. Respondents were asked to identify the items they thought should be the City's top priorities.

Satisfaction %: The "Satisfaction" percentage represents the sum of the ratings "5" and "4" excluding 'don't knows.' Respondents ranked their level of satisfaction with each of the items on a scale of 5 to 1 with "5" being Very Satisfied and "1" being Very Dissatisfied.

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4 Tabular Data

Q1. Perception of the City. Please rate each of the following major categories of services provided by the City of Oregon City using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q1-1. Overall quality of police services	24.9%	44.5%	17.1%	4.7%	0.3%	8.4%
Q1-2. Overall quality of the City's recreation programs	7.8%	33.0%	29.9%	10.0%	1.6%	17.8%
Q1-3. Overall quality of City parks/trails/open space	15.3%	47.0%	20.9%	9.0%	1.9%	5.9%
Q1-4. Overall maintenance of City streets	6.9%	32.4%	22.4%	25.9%	12.1%	0.3%
Q1-5. Overall quality of City water utilities	14.0%	55.5%	15.9%	10.3%	2.5%	1.9%
Q1-6. Overall quality of City sewer services	15.6%	54.8%	19.3%	5.9%	1.2%	3.1%
Q1-7. Overall quality of Municipal Court services	4.7%	20.9%	31.2%	2.8%	0.9%	39.6%
Q1-8. Overall enforcement of City codes & ordinances	6.5%	24.6%	31.5%	17.8%	4.7%	15.0%
Q1-9. Overall quality of customer service you receive from City employees	14.6%	35.8%	26.2%	4.0%	1.2%	18.1%
Q1-10. Overall effectiveness of City communication with the public	7.2%	32.7%	33.6%	14.0%	4.7%	7.8%
Q1-11. Overall effectiveness of City economic development efforts	3.1%	21.2%	29.6%	18.7%	10.3%	17.1%
Q1-12. Overall quality of City's public library services	34.6%	34.3%	15.0%	0.9%	0.0%	15.3%
Q1-13. Overall quality of permit process	2.5%	12.5%	30.2%	9.7%	5.0%	40.2%

WITHOUT "DON'T KNOW"

Q1. Perception of the City. Please rate each of the following major categories of services provided by the City of Oregon City using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied." (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q1-1. Overall quality of police services	27.2%	48.6%	18.7%	5.1%	0.3%
Q1-2. Overall quality of the City's recreation programs	9.5%	40.2%	36.4%	12.1%	1.9%
Q1-3. Overall quality of City parks/trails/open space	16.2%	50.0%	22.2%	9.6%	2.0%
Q1-4. Overall maintenance of City streets	6.9%	32.5%	22.5%	25.9%	12.2%
Q1-5. Overall quality of City water utilities	14.3%	56.5%	16.2%	10.5%	2.5%
Q1-6. Overall quality of City sewer services	16.1%	56.6%	19.9%	6.1%	1.3%
Q1-7. Overall quality of Municipal Court services	7.7%	34.5%	51.5%	4.6%	1.5%
Q1-8. Overall enforcement of City codes & ordinances	7.7%	28.9%	37.0%	20.9%	5.5%
Q1-9. Overall quality of customer service you receive from City employees	17.9%	43.7%	31.9%	4.9%	1.5%
Q1-10. Overall effectiveness of City communication with the public	7.8%	35.5%	36.5%	15.2%	5.1%
Q1-11. Overall effectiveness of City economic development efforts	3.8%	25.6%	35.7%	22.6%	12.4%
Q1-12. Overall quality of City's public library services	40.8%	40.4%	17.6%	1.1%	0.0%
Q1-13. Overall quality of permit process	4.2%	20.8%	50.5%	16.1%	8.3%

Q2. Which THREE of the items listed in Question 1 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q2. Top choice	Number	Percent
Overall quality of police services	58	18.1 %
Overall quality of the City's recreation programs	19	5.9 %
Overall quality of City parks/trails/open space	32	10.0 %
Overall maintenance of City streets	83	25.9 %
Overall quality of City water utilities	10	3.1 %
Overall quality of City sewer services	2	0.6 %
Overall quality of Municipal Court services	3	0.9 %
Overall enforcement of City codes & ordinances	26	8.1 %
Overall quality of customer service you receive from City employees	3	0.9 %
Overall effectiveness of City communication with the public	22	6.9 %
Overall effectiveness of City economic development efforts	30	9.3 %
Overall quality of permit process	8	2.5 %
None chosen	25	7.8 %
Total	321	100.0 %

Q2. Which THREE of the items listed in Question 1 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q2. 2nd choice	Number	Percent
Overall quality of police services	26	8.1 %
Overall quality of the City's recreation programs	25	7.8 %
Overall quality of City parks/trails/open space	35	10.9 %
Overall maintenance of City streets	65	20.2 %
Overall quality of City water utilities	13	4.0 %
Overall quality of City sewer services	10	3.1 %
Overall quality of Municipal Court services	7	2.2 %
Overall enforcement of City codes & ordinances	29	9.0 %
Overall quality of customer service you receive from City employees	6	1.9 %
Overall effectiveness of City communication with the public	26	8.1 %
Overall effectiveness of City economic development efforts	31	9.7 %
Overall quality of City's public library services	2	0.6 %
Overall quality of permit process	11	3.4 %
None chosen	35	10.9 %
Total	321	100.0 %

Q2. Which THREE of the items listed in Question 1 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q2. 3rd choice	Number	Percent
Overall quality of police services	23	7.2 %
Overall quality of the City's recreation programs	23	7.2 %
Overall quality of City parks/trails/open space	39	12.1 %
Overall maintenance of City streets	38	11.8 %
Overall quality of City water utilities	19	5.9 %
Overall quality of City sewer services	9	2.8 %
Overall enforcement of City codes & ordinances	24	7.5 %
Overall quality of customer service you receive from City employees	8	2.5 %
Overall effectiveness of City communication with the public	29	9.0 %
Overall effectiveness of City economic development efforts	44	13.7 %
Overall quality of City's public library services	3	0.9 %
Overall quality of permit process	17	5.3 %
None chosen	45	14.0 %
Total	321	100.0 %

SUM OF TOP 3 CHOICES

Q2. Which THREE of the items listed in Question 1 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years? (top 3)

Q2. Sum of top 3 choices	Number	Percent
Overall quality of police services	107	33.3 %
Overall quality of the City's recreation programs	67	20.9 %
Overall quality of City parks/trails/open space	106	33.0 %
Overall maintenance of City streets	186	57.9 %
Overall quality of City water utilities	42	13.1 %
Overall quality of City sewer services	21	6.5 %
Overall quality of Municipal Court services	10	3.1 %
Overall enforcement of City codes & ordinances	79	24.6 %
Overall quality of customer service you receive from City employees	17	5.3 %
Overall effectiveness of City communication with the public	77	24.0 %
Overall effectiveness of City economic development efforts	105	32.7 %
Overall quality of City's public library services	5	1.6 %
Overall quality of permit process	36	11.2 %
None chosen	25	7.8 %
Total	883	

Q3. Please rate each of the following items that may influence your perception of the City of Oregon City using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q3-1. Overall quality of services provided by City of Oregon City	7.2%	53.0%	27.1%	5.6%	0.6%	6.5%
Q3-2. Overall value that you receive for your tax dollars & fees	2.5%	28.7%	33.6%	21.5%	8.7%	5.0%
Q3-3. Overall image of City	7.2%	44.5%	30.5%	14.6%	1.6%	1.6%
Q3-4. How well City is supporting growth & development	2.2%	22.4%	31.2%	26.8%	9.3%	8.1%
Q3-5. Overall feeling of safety in City	11.5%	45.5%	22.7%	14.6%	3.7%	1.9%
Q3-6. Availability of job opportunities	3.4%	17.8%	31.5%	9.0%	2.2%	36.1%
Q3-7. Availability of training or educational opportunities	3.4%	26.2%	31.5%	7.8%	2.2%	29.0%
Q3-8. Overall quality of new development	2.8%	17.4%	33.6%	24.3%	9.7%	12.1%
Q3-9. Overall development across City	2.5%	17.1%	37.1%	26.5%	7.8%	9.0%

WITHOUT "DON'T KNOW"

Q3. Please rate each of the following items that may influence your perception of the City of Oregon City using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied." (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q3-1. Overall quality of services provided by City of Oregon City	7.7%	56.7%	29.0%	6.0%	0.7%
Q3-2. Overall value that you receive for your tax dollars & fees	2.6%	30.2%	35.4%	22.6%	9.2%
Q3-3. Overall image of City	7.3%	45.3%	31.0%	14.9%	1.6%
Q3-4. How well City is supporting growth & development	2.4%	24.4%	33.9%	29.2%	10.2%
Q3-5. Overall feeling of safety in City	11.7%	46.3%	23.2%	14.9%	3.8%
Q3-6. Availability of job opportunities	5.4%	27.8%	49.3%	14.1%	3.4%
Q3-7. Availability of training or educational opportunities	4.8%	36.8%	44.3%	11.0%	3.1%
Q3-8. Overall quality of new development	3.2%	19.9%	38.3%	27.7%	11.0%
Q3-9. Overall development across City	2.7%	18.8%	40.8%	29.1%	8.6%

Q4. Parks and Recreation. Please rate your satisfaction with each of the following Parks and Recreation items using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q4-1. Quality of facilities (e.g., picnic shelters, playgrounds in City parks)	14.0%	51.7%	18.7%	7.8%	1.2%	6.5%
Q4-2. Quality of outdoor athletic fields (e.g., baseball, soccer, football)	12.5%	32.7%	29.3%	7.8%	1.2%	16.5%
Q4-3. Appearance & maintenance of existing City parks	15.9%	47.7%	20.9%	10.0%	0.6%	5.0%
Q4-4. Proximity of parks to your home	27.7%	45.2%	14.3%	5.9%	2.5%	4.4%
Q4-5. Quantity of City trails	10.3%	31.8%	26.8%	12.1%	2.5%	16.5%
Q4-6. Access to City parks for persons with disabilities	7.5%	21.8%	27.7%	7.5%	1.2%	34.3%
Q4-7. Quality of Pioneer Community Center	10.9%	24.9%	25.2%	2.8%	0.9%	35.2%
Q4-8. Quality of End of the Oregon Trail	7.8%	25.5%	26.8%	11.2%	2.8%	25.9%
Q4-9. Quality of City's swimming pool	5.9%	25.2%	24.6%	9.3%	1.9%	33.0%
Q4-10. Quality of services for fees assessed with recreation programing (e.g., pool programs, admission, & camps)	5.3%	23.1%	29.3%	8.4%	2.8%	31.2%
Q4-11. Quality of recreational areas for dogs	4.0%	22.4%	23.4%	14.6%	4.4%	31.2%
Q4-12. Other	0.0%	0.0%	1.9%	3.7%	3.1%	91.3%

WITHOUT "DON'T KNOW"

Q4. Parks and Recreation. Please rate your satisfaction with each of the following Parks and Recreation items using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied." (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q4-1. Quality of facilities (e.g., picnic shelters, playgrounds in City parks)	15.0%	55.3%	20.0%	8.3%	1.3%
Q4-2. Quality of outdoor athletic fields (e.g., baseball, soccer, football)	14.9%	39.2%	35.1%	9.3%	1.5%
Q4-3. Appearance & maintenance of existing City parks	16.7%	50.2%	22.0%	10.5%	0.7%
Q4-4. Proximity of parks to your home	29.0%	47.2%	15.0%	6.2%	2.6%
Q4-5. Quantity of City trails	12.3%	38.1%	32.1%	14.6%	3.0%
Q4-6. Access to City parks for persons with disabilities	11.4%	33.2%	42.2%	11.4%	1.9%
Q4-7. Quality of Pioneer Community Center	16.8%	38.5%	38.9%	4.3%	1.4%
Q4-8. Quality of End of the Oregon Trail	10.5%	34.5%	36.1%	15.1%	3.8%
Q4-9. Quality of City's swimming pool	8.8%	37.7%	36.7%	14.0%	2.8%
Q4-10. Quality of services for fees assessed with recreation programing (e.g., pool programs, admission, & camps)	7.7%	33.5%	42.5%	12.2%	4.1%
Q4-11. Quality of recreational areas for dogs	5.9%	32.6%	33.9%	21.3%	6.3%
Q4-12. Other	0.0%	0.0%	21.4%	42.9%	35.7%

Q4-12. Other

- Central point roads needs paving or friend blew out their tire on that road. The current admin is wasting tax payer money. We should not be spending money on quieting a railroad and tax payers should not be contributing to buildings downtown being turned into housing. There is no parking down there for this. People from all over frequent Main Street in Oregon city don't ruin it by creating parking.
- Disappointed with enforcement of city codes in parks, people smoke in the city parks, let their dogs off leash in on leash parks, dog poop in parks, homeless smoking, sleeping in our parks, drinking and using drugs by homeless and teens in city parks.
- Downtown parking, I'm hopeful that when Blue Heron is completed there will be parking.
- EXPAND PARK HOST PROGRAM
- FENCED DOG PLAY AREA NEEDED
- Homeless
- Homeless and Teens improperly using the parks and facilities
- Homeless folks are creating hazards, garbage, and menacing. Many of these individuals are aggressive to the point of menacing. I have had several incidents of individuals coming onto my property, and I have stopped shopping at Fred Meyer because of the harassment. I spoke to the FM management and they said they can't ban them from the store. I also used to regularly walk the trails at CCC but I just didn't feel safe. The college seems to have increased security so I think it's better. There needs to be a better plan and location for those displaced individuals. I have had multiple near misses while driving on Hwy 213 with individuals walking/weaving on the side of the road dressed all in black. I realize most these incidents are on property not owned by the city, but the camps are in the city. I also understand that there is no easy solution, but my frustration with feeling unsafe, and the theft, as well as the garbage are real.
- I am extremely disappointed with the approach taken by the city towards Sports craft Marina. The city has done everything in its power to hinder the continued operations of the Marina. Sports craft is the only publicly available covered recreational docks on the lower Willamette River. Should the facility be forced out of business, Oregon City would lose valuable river access. Parking at the boat launch is already notoriously tight. Parking and traffic would get significantly worse without the montage. The treatment of the facility operators by city personnel is unconscionable.
- I believe the issue with many of the outdoor recreation areas such as , Newell Creek Trails west of Hwy 213, are unsafe to use.
- Internet services, no fiber we are 2 centuries behind, it is horrible and the monopoly with Comcast is abusing...
- NEED MORE ATHLETIC FIELDS FOR SOFTBALL, BASEBALL, SOCCER AND PICKLEBALL-FIELDS THAT ALLOW FOR ATHLETIC PRACTICE
- OC needs more sports courts. We have two tennis courts that are accessible to the public. When the weather is nice, it is difficult to get court time. It would be great to have indoor courts at a reasonable price. Also, OC is behind Gladstone, Clackamas, West Linn in not having pickleball courts. Phase 2 at Tyrone was supposed to include them and wasn't completed.
- Quality of transportation and road congestion. City's vision of growth on the overall quality of life of those who already live in Oregon City. Growth versus quality of life. Growth won and to who's benefits? Are any studies performed on the impact on the community's quality of life?
- Some parks are obviously well kept, others look just terrible.
- Staffing for Parks maintenance
- Taxes too high. Homeless causing a lot of crime
- The city needs to focus my tax dollars on infrastructure improvements like fix the roads instead of the parks.

Q4-12. Other

- The first sentence in the city commissions goals stating. The Commission has adopted the following goals for the City which are to: Promote diversity, equity, and inclusion for a safe, inclusive community, and organization. Because that is a left wing agenda used to create divisiveness and promote racism.
- The homeless and graffiti are here. We left Portland because if it. It's creeping in. The theft, fires, mentally unstable, garbage, it needs to be a top priority! Along 213, beside our lovely trails and along the water are becoming unsafe!
- The signs with our park names could be re-done to where it looks updated, inviting and fresh. Lake Oswego Parks and Rec did that and it looks great.
- Tolling is my number one issue it has to stop being forced down the community's throats with no voting. That is not how this works the people/communities need to decide. It needs to stop until the people have spoken.
- Tolls coming. City isn't doing enough to help us fight this. We cany afford it and our roads are already over used now it will be far worse.
- Trimet Transit Center needs to be policed and cleaned up. Not safe for public transportation riders. Lots of drugs, crimes, and garbage.

Q5. Which TWO of the Parks and Recreation items listed in Question 4 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q5. Top choice	Number	Percent
Quality of facilities (e.g., picnic shelters, playgrounds in City parks)	48	15.0 %
Quality of outdoor athletic fields (e.g., baseball, soccer, football)	21	6.5 %
Appearance & maintenance of existing City parks	49	15.3 %
Proximity of parks to your home	12	3.7 %
Quantity of City trails	28	8.7 %
Access to City parks for persons with disabilities	21	6.5 %
Quality of Pioneer Community Center	10	3.1 %
Quality of End of the Oregon Trail	17	5.3 %
Quality of City's swimming pool	27	8.4 %
Quality of services for fees assessed with recreation programing (e.g., pool programs, admission, & camps)	16	5.0 %
Quality of recreational areas for dogs	26	8.1 %
Other	11	3.4 %
None chosen	35	10.9 %
Total	321	100.0 %

Q5. Which TWO of the Parks and Recreation items listed in Question 4 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q5. 2nd choice	Number	Percent
Quality of facilities (e.g., picnic shelters, playgrounds in City parks)	35	10.9 %
Quality of outdoor athletic fields (e.g., baseball, soccer, football)	22	6.9 %
Appearance & maintenance of existing City parks	44	13.7 %
Proximity of parks to your home	10	3.1 %
Quantity of City trails	37	11.5 %
Access to City parks for persons with disabilities	14	4.4 %
Quality of Pioneer Community Center	11	3.4 %
Quality of End of the Oregon Trail	16	5.0 %
Quality of City's swimming pool	21	6.5 %
Quality of services for fees assessed with recreation programing (e.g., pool programs, admission, & camps)	26	8.1 %
Quality of recreational areas for dogs	25	7.8 %
Other	7	2.2 %
None chosen	53	16.5 %
Total	321	100.0 %

SUM OF TOP 2 CHOICES

Q5. Which TWO of the Parks and Recreation items listed in Question 4 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years? (top 2)

Q5. Sum of top 2 choices	Number	Percent
Quality of facilities (e.g., picnic shelters, playgrounds in City parks)	83	25.9 %
Quality of outdoor athletic fields (e.g., baseball, soccer, football)	43	13.4 %
Appearance & maintenance of existing City parks	93	29.0 %
Proximity of parks to your home	22	6.9 %
Quantity of City trails	65	20.2 %
Access to City parks for persons with disabilities	35	10.9 %
Quality of Pioneer Community Center	21	6.5 %
Quality of End of the Oregon Trail	33	10.3 %
Quality of City's swimming pool	48	15.0 %
Quality of services for fees assessed with recreation programing (e.g., pool programs, admission, & camps)	42	13.1 %
Quality of recreational areas for dogs	51	15.9 %
Other	18	5.6 %
None chosen	35	10.9 %
Total	589	

Q6. How willing would you be to pay additional taxes or fees to acquire, develop, and maintain the types of parks, recreation, and trail facilities that are most important to your household?

Q6. How willing would you be to pay additional taxes or fees to acquire, develop, & maintain parks, recreation, & trail facilities	Number	Percent
Very willing	27	8.4 %
Willing	76	23.7 %
Neutral	68	21.2 %
Not willing	64	19.9 %
Not at all willing	71	22.1 %
Don't know	15	4.7 %
Total	321	100.0 %

WITHOUT "DON'T KNOW"

Q6. How willing would you be to pay additional taxes or fees to acquire, develop, and maintain the types of parks, recreation, and trail facilities that are most important to your household? (without "don't know")

Q6. How willing would you be to pay additional taxes or fees to acquire, develop, & maintain parks, recreation, & trail facilities	Number	Percent
Very willing	27	8.8 %
Willing	76	24.8 %
Neutral	68	22.2 %
Not willing	64	20.9 %
Not at all willing	71	23.2 %
Total	306	100.0 %

Q7. How satisfied are you with…

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q7-1. City creating a diverse, inclusive, & fair community	10.0%	26.2%	37.1%	10.0%	5.0%	11.8%
Q7-2. City helps residents feel connected & integrated into the community	6.9%	24.0%	40.8%	11.8%	5.3%	11.2%

WITHOUT "DON'T KNOW"

Q7. How satisfied are you with… (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q7-1. City creating a diverse, inclusive, & fair community	11.3%	29.7%	42.0%	11.3%	5.7%
Q7-2. City helps residents feel connected & integrated into the community	7.7%	27.0%	46.0%	13.3%	6.0%

Q8. Public Safety. Please rate each of the public safety items listed below using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q8-1. Visibility of police in the community	20.2%	48.3%	18.4%	9.7%	1.9%	1.6%
Q8-2. City's overall efforts to prevent crime	12.1%	34.3%	24.0%	14.6%	5.0%	10.0%
Q8-3. Enforcement of local traffic laws	12.8%	37.1%	24.6%	14.0%	6.2%	5.3%
Q8-4. Parking enforcement services	7.5%	30.5%	34.6%	5.9%	5.0%	16.5%
Q8-5. How quickly police respond to emergencies	12.8%	27.4%	22.1%	5.3%	1.2%	31.2%
Q8-6. Response to drug control	4.0%	11.5%	22.4%	15.0%	10.3%	36.8%
Q8-7. Response to property crime	5.6%	15.9%	24.9%	12.8%	8.1%	32.7%
Q8-8. Level of community outreach	7.2%	24.0%	34.3%	8.7%	4.0%	21.8%
Q8-9. Response to issues with transients	4.4%	11.8%	19.0%	23.4%	17.4%	24.0%

WITHOUT "DON'T KNOW"

Q8. Public Safety. Please rate each of the public safety items listed below using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied." (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q8-1. Visibility of police in the community	20.6%	49.1%	18.7%	9.8%	1.9%
Q8-2. City's overall efforts to prevent crime	13.5%	38.1%	26.6%	16.3%	5.5%
Q8-3. Enforcement of local traffic laws	13.5%	39.1%	26.0%	14.8%	6.6%
Q8-4. Parking enforcement services	9.0%	36.6%	41.4%	7.1%	6.0%
Q8-5. How quickly police respond to emergencies	18.6%	39.8%	32.1%	7.7%	1.8%
Q8-6. Response to drug control	6.4%	18.2%	35.5%	23.6%	16.3%
Q8-7. Response to property crime	8.3%	23.6%	37.0%	19.0%	12.0%
Q8-8. Level of community outreach	9.2%	30.7%	43.8%	11.2%	5.2%
Q8-9. Response to issues with transients	5.7%	15.6%	25.0%	30.7%	23.0%

Q9. Which TWO of the public safety items listed in Question 8 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q9. Top choice	Number	Percent
Visibility of police in the community	36	11.2 %
City's overall efforts to prevent crime	43	13.4 %
Enforcement of local traffic laws	16	5.0 %
Parking enforcement services	3	0.9 %
How quickly police respond to emergencies	18	5.6 %
Response to drug control	21	6.5 %
Response to property crime	17	5.3 %
Level of community outreach	18	5.6 %
Response to issues with transients	127	39.6 %
None chosen	22	6.9 %
Total	321	100.0 %

Q9. Which TWO of the public safety items listed in Question 8 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q9. 2nd choice	Number	Percent
Visibility of police in the community	20	6.2 %
City's overall efforts to prevent crime	49	15.3 %
Enforcement of local traffic laws	17	5.3 %
Parking enforcement services	5	1.6 %
How quickly police respond to emergencies	24	7.5 %
Response to drug control	45	14.0 %
Response to property crime	45	14.0 %
Level of community outreach	22	6.9 %
Response to issues with transients	60	18.7 %
None chosen	34	10.6 %
Total	321	100.0 %

SUM OF TOP 2 CHOICES

Q9. Which TWO of the public safety items listed in Question 8 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years? (top 2)

Q9. Sum of top 2 choices	Number	Percent
Visibility of police in the community	56	17.4 %
City's overall efforts to prevent crime	92	28.7 %
Enforcement of local traffic laws	33	10.3 %
Parking enforcement services	8	2.5 %
How quickly police respond to emergencies	42	13.1 %
Response to drug control	66	20.6 %
Response to property crime	62	19.3 %
Level of community outreach	40	12.5 %
Response to issues with transients	187	58.3 %
None chosen	22	6.9 %
Total	608	

Q10. Communication. Where do you currently get news and information about City programs, services, and events?

Q10. Where do you currently get news & information about City programs, services, & events	Number	Percent
"Trail News" quarterly publication	218	67.9 %
City website	99	30.8 %
Newspaper	87	27.1 %
Friends	108	33.6 %
Radio	19	5.9 %
Social media (Facebook, Twitter, Instagram, LinkedIn)	189	58.9 %
Public meetings	43	13.4 %
City's mobile app ("OC Request")	9	2.8 %
YouTube	10	3.1 %
Citizen Involvement Committee	11	3.4 %
TV local news	116	36.1 %
Nextdoor	111	34.6 %
Neighborhood association	55	17.1 %
Utility bill	72	22.4 %
Flyers	53	16.5 %
eTrail News Monthly eNewsletter	56	17.4 %
Other	11	3.4 %
Total	1267	

Q10-17. Other

- Community Organizations
- email
- Friends/neighbors
- Library emails
- neighbor
- Newsletters
- Newsletters from other organizations such as the Chamber of Commerce, Three Rivers Artist Guild and Friends of the Library newsletters and weekly Eblasts.
- OC CHIT CHAT
- OC CITY NEWS
- OPTIMIST CLUB INVOLVEMENT

Q10a. From which TWO sources listed in Question 10 would you MOST PREFER to get information from the City?

Q10a. Top choice	Number	Percent
"Trail News" quarterly publication	90	28.0 %
City website	34	10.6 %
Newspaper	10	3.1 %
Friends	5	1.6 %
Radio	2	0.6 %
Social media (Facebook, Twitter, Instagram, LinkedIn)	68	21.2 %
Public meetings	5	1.6 %
City's mobile app ("OC Request")	4	1.2 %
YouTube	2	0.6 %
Citizen Involvement Committee	1	0.3 %
TV local news	20	6.2 %
Nextdoor	11	3.4 %
Neighborhood association	2	0.6 %
Utility bill	10	3.1 %
Flyers	10	3.1 %
eTrail News Monthly eNewsletter	12	3.7 %
Other	2	0.6 %
None chosen	33	10.3 %
Total	321	100.0 %

Q10a. From which TWO sources listed in Question 10 would you MOST PREFER to get information from the City?

Q10a. 2nd choice	Number	Percent
"Trail News" quarterly publication	41	12.8 %
City website	37	11.5 %
Newspaper	14	4.4 %
Friends	9	2.8 %
Radio	3	0.9 %
Social media (Facebook, Twitter, Instagram, LinkedIn)	46	14.3 %
Public meetings	6	1.9 %
City's mobile app ("OC Request")	12	3.7 %
YouTube	2	0.6 %
Citizen Involvement Committee	4	1.2 %
TV local news	22	6.9 %
Nextdoor	11	3.4 %
Neighborhood association	11	3.4 %
Utility bill	16	5.0 %
Flyers	8	2.5 %
eTrail News Monthly eNewsletter	30	9.3 %
None chosen	49	15.3 %
Total	321	100.0 %

SUM OF TOP 2 CHOICES

Q10a. From which TWO sources listed in Question 10 would you MOST PREFER to get information from the City? (top 2)

Q10a. Sum of top 2 choices	Number	Percent
"Trail News" quarterly publication	131	40.8 %
City website	71	22.1 %
Newspaper	24	7.5 %
Friends	14	4.4 %
Radio	5	1.6 %
Social media (Facebook, Twitter, Instagram, LinkedIn)	114	35.5 %
Public meetings	11	3.4 %
City's mobile app ("OC Request")	16	5.0 %
YouTube	4	1.2 %
Citizen Involvement Committee	5	1.6 %
TV local news	42	13.1 %
Nextdoor	22	6.9 %
Neighborhood association	13	4.0 %
Utility bill	26	8.1 %
Flyers	18	5.6 %
eTrail News Monthly eNewsletter	42	13.1 %
Other	2	0.6 %
None chosen	33	10.3 %
Total	593	

Q10b. How frequently would you like to receive information from the City?

Q10b. Top choice	Number	Percent
Daily	18	5.6 %
Weekly	111	34.6 %
Monthly	149	46.4 %
Quarterly	19	5.9 %
Don't know	24	7.5 %
Total	321	100.0 %

Q10b. How frequently would you like to receive information from the City?

Q10b. 2nd choice	Number	Percent
Daily	20	6.2 %
Weekly	59	18.4 %
Monthly	99	30.8 %
Quarterly	90	28.0 %
Don't know	53	16.5 %
Total	321	100.0 %

SUM OF TOP 2 CHOICES

Q10b. How frequently would you like to receive information from the City? (top 2)

Q10b. Sum of top 2 choices	Number	Percent
Daily	38	11.8 %
Weekly	170	53.0 %
Monthly	248	77.3 %
Quarterly	109	34.0 %
Don't know	24	7.5 %
Total	589	

Q11. Which of the following types of information would you like to receive from the City of Oregon City?

Q11. Which following types of information would you like to receive from City of Oregon City	Number	Percent
City Commission's goals meeting wrap up	136	42.4 %
Public safety (police)	232	72.3 %
Public works (infrastructure & transportation updates)	212	66.0 %
Special events	232	72.3 %
Community-based stories (what is going on locally)	183	57.0 %
Economic development	174	54.2 %
Library services & programs	145	45.2 %
Parks & Recreation programs & services	189	58.9 %
Other	9	2.8 %
Total	1512	

Q11-9. Other

- How the city is dealing with the drug and homeless problem. What improvements is the city making. Is code enforcement doing their job. Is it legal to have people living in their trailers on your property? Control taxes for seniors.
- Internet and tech development
- Land use plans and how a neighborhood can be a part of the process very early on before it’s too late. In general, when the blue signs go up for a proposed use of land it’s rally too late and the proposal goes through in spite of the neighborhood opinions
- LOCAL IMPACTS OF WEATHER-LIKE ICE STORMS AND FIRES EMERGENCY RESPONSES
- new restaurants
- Other activities, volunteer opportunities, community education
- Places to volunteer
- Response to Proud Boys and Patriot Front gatherings at Albertsons corner on Fridays.
- toll project

Q12. Please rate each of the communication items listed below using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q12-1. Availability of information about City programs & services	3.4%	35.2%	37.4%	15.3%	3.1%	5.6%
Q12-2. Overall quality of City's website	3.4%	21.2%	35.2%	11.5%	3.1%	25.5%
Q12-3. Level of public involvement in decision making	1.9%	11.8%	31.5%	23.1%	10.0%	21.8%
Q12-4. Timeliness of information provided by City	2.2%	17.8%	40.5%	16.8%	4.7%	18.1%
Q12-5. Quality of content on social media (Facebook, Twitter, Instagram)	2.2%	21.8%	35.5%	14.0%	1.2%	25.2%
Q12-6. Access to bilingual material	1.6%	4.4%	28.0%	2.5%	0.3%	63.2%

WITHOUT "DON'T KNOW"

Q12. Please rate each of the communication items listed below using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied." (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q12-1. Availability of information about City programs & services	3.6%	37.3%	39.6%	16.2%	3.3%
Q12-2. Overall quality of City's website	4.6%	28.5%	47.3%	15.5%	4.2%
Q12-3. Level of public involvement in decision making	2.4%	15.1%	40.2%	29.5%	12.7%
Q12-4. Timeliness of information provided by City	2.7%	21.7%	49.4%	20.5%	5.7%
Q12-5. Quality of content on social media (Facebook, Twitter, Instagram)	2.9%	29.2%	47.5%	18.8%	1.7%
Q12-6. Access to bilingual material	4.2%	11.9%	76.3%	6.8%	0.8%

Q13. Code Enforcement. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following code enforcement items.

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q13-1. Enforcing cleanup of litter & debris on private property	4.0%	19.6%	30.5%	18.7%	9.0%	18.1%
Q13-2. Enforcing mowing/ trimming of grass & weeds on private property	4.4%	18.4%	32.7%	15.6%	5.3%	23.7%
Q13-3. Enforcing codes designed to protect public safety & health	4.0%	27.4%	27.4%	14.3%	5.3%	21.5%
Q13-4. Enforcing sign regulation	3.4%	20.6%	31.5%	10.3%	5.0%	29.3%

WITHOUT "DON'T KNOW"

Q13. Code Enforcement. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following code enforcement items. (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q13-1. Enforcing cleanup of litter & debris on private property	4.9%	24.0%	37.3%	22.8%	11.0%
Q13-2. Enforcing mowing/trimming of grass & weeds on private property	5.7%	24.1%	42.9%	20.4%	6.9%
Q13-3. Enforcing codes designed to protect public safety & health	5.2%	34.9%	34.9%	18.3%	6.7%
Q13-4. Enforcing sign regulation	4.8%	29.1%	44.5%	14.5%	7.0%

Q14. Which TWO of the code enforcement items listed in Question 13 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q14. Top choice	Number	Percent
Enforcing cleanup of litter & debris on private property	126	39.3 %
Enforcing mowing/trimming of grass & weeds on private property	19	5.9 %
Enforcing codes designed to protect public safety & health	125	38.9 %
Enforcing sign regulation	12	3.7 %
None chosen	39	12.1 %
Total	321	100.0 %

Q14. Which TWO of the code enforcement items listed in Question 13 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q14. 2nd choice	Number	Percent
Enforcing cleanup of litter & debris on private property	87	27.1 %
Enforcing mowing/trimming of grass & weeds on private property	55	17.1 %
Enforcing codes designed to protect public safety & health	72	22.4 %
Enforcing sign regulation	43	13.4 %
None chosen	64	19.9 %
Total	321	100.0 %

SUM OF TOP 2 CHOICES

Q14. Which TWO of the code enforcement items listed in Question 13 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years? (top 2)

Q14. Sum of top 2 choices	Number	Percent
Enforcing cleanup of litter & debris on private property	213	66.4 %
Enforcing mowing/trimming of grass & weeds on private property	74	23.1 %
Enforcing codes designed to protect public safety & health	197	61.4 %
Enforcing sign regulation	55	17.1 %
None chosen	39	12.1 %
Total	578	

Q15. Transportation and Infrastructure. Please rate each of the following street maintenance/service items using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q15-1. Maintenance of major City streets	6.9%	39.9%	18.7%	20.2%	12.5%	1.9%
Q15-2. Maintenance of streets in your neighborhood	6.2%	42.7%	15.0%	20.9%	13.1%	2.2%
Q15-3. Snow & ice response on major City streets	16.8%	49.8%	20.2%	6.5%	2.5%	4.0%
Q15-4. Adequacy of City street lighting in your neighborhood	12.8%	53.0%	15.0%	13.7%	3.7%	1.9%
Q15-5. Condition of sidewalks in your neighborhood	9.7%	33.6%	24.9%	14.6%	8.1%	9.0%
Q15-6. On-street bicycle infrastructure (bike lanes/signs/ arrows)	6.2%	28.7%	35.8%	13.1%	2.5%	13.7%
Q15-7. Accessibility of public transportation options	9.0%	33.0%	27.1%	11.8%	4.0%	15.0%
Q15-8. Availability of safe pedestrian ways on major streets & routes	6.9%	38.3%	23.1%	18.4%	6.2%	7.2%
Q15-9. Availability of safe pedestrian ways in your neighborhood	10.0%	40.2%	19.3%	17.4%	8.1%	5.0%
Q15-10. Quality of sidewalks for people with mobility challenges	4.7%	24.6%	24.3%	18.1%	9.0%	19.3%
Q15-11. Traffic calming measures in your neighborhood, for example, traffic circles, speed humps, or radar speed signs	5.3%	28.7%	28.7%	19.3%	11.5%	6.5%
Q15-12. Alternative means of transportation such as transit, bicycling, walking	5.3%	33.0%	29.3%	15.9%	3.7%	12.8%

WITHOUT "DON'T KNOW"

Q15. Transportation and Infrastructure. Please rate each of the following street maintenance/service items using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied." (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q15-1. Maintenance of major City streets	7.0%	40.6%	19.0%	20.6%	12.7%
Q15-2. Maintenance of streets in your neighborhood	6.4%	43.6%	15.3%	21.3%	13.4%
Q15-3. Snow & ice response on major City streets	17.5%	51.9%	21.1%	6.8%	2.6%
Q15-4. Adequacy of City street lighting in your neighborhood	13.0%	54.0%	15.2%	14.0%	3.8%
Q15-5. Condition of sidewalks in your neighborhood	10.6%	37.0%	27.4%	16.1%	8.9%
Q15-6. On-street bicycle infrastructure (bike lanes/signs/arrows)	7.2%	33.2%	41.5%	15.2%	2.9%
Q15-7. Accessibility of public transportation options	10.6%	38.8%	31.9%	13.9%	4.8%
Q15-8. Availability of safe pedestrian ways on major streets & routes	7.4%	41.3%	24.8%	19.8%	6.7%
Q15-9. Availability of safe pedestrian ways in your neighborhood	10.5%	42.3%	20.3%	18.4%	8.5%
Q15-10. Quality of sidewalks for people with mobility challenges	5.8%	30.5%	30.1%	22.4%	11.2%
Q15-11. Traffic calming measures in your neighborhood, for example, traffic circles, speed humps, or radar speed signs	5.7%	30.7%	30.7%	20.7%	12.3%
Q15-12. Alternative means of transportation such as transit, bicycling, walking	6.1%	37.9%	33.6%	18.2%	4.3%

Q16. Which TWO of the transportation and infrastructure items listed in Question 15 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q16. Top choice	Number	Percent
Maintenance of major City streets	106	33.0 %
Maintenance of streets in your neighborhood	42	13.1 %
Snow & ice response on major City streets	14	4.4 %
Adequacy of City street lighting in your neighborhood	16	5.0 %
Condition of sidewalks in your neighborhood	22	6.9 %
On-street bicycle infrastructure (bike lanes/signs/arrows)	7	2.2 %
Accessibility of public transportation options	12	3.7 %
Availability of safe pedestrian ways on major streets & routes	29	9.0 %
Availability of safe pedestrian ways in your neighborhood	8	2.5 %
Quality of sidewalks for people with mobility challenges	9	2.8 %
Traffic calming measures in your neighborhood, for example, traffic circles, speed humps, or radar speed signs	30	9.3 %
Alternative means of transportation such as transit, bicycling, walking	10	3.1 %
None chosen	16	5.0 %
Total	321	100.0 %

Q16. Which TWO of the transportation and infrastructure items listed in Question 15 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q16. 2nd choice	Number	Percent
Maintenance of major City streets	37	11.5 %
Maintenance of streets in your neighborhood	63	19.6 %
Snow & ice response on major City streets	13	4.0 %
Adequacy of City street lighting in your neighborhood	16	5.0 %
Condition of sidewalks in your neighborhood	22	6.9 %
On-street bicycle infrastructure (bike lanes/signs/arrows)	6	1.9 %
Accessibility of public transportation options	15	4.7 %
Availability of safe pedestrian ways on major streets & routes	32	10.0 %
Availability of safe pedestrian ways in your neighborhood	25	7.8 %
Quality of sidewalks for people with mobility challenges	18	5.6 %
Traffic calming measures in your neighborhood, for example, traffic circles, speed humps, or radar speed signs	29	9.0 %
Alternative means of transportation such as transit, bicycling, walking	15	4.7 %
None chosen	30	9.3 %
Total	321	100.0 %

SUM OF TOP 2 CHOICES

Q16. Which TWO of the transportation and infrastructure items listed in Question 15 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years? (top 2)

Q16. Sum of top 2 choices	Number	Percent
Maintenance of major City streets	143	44.5 %
Maintenance of streets in your neighborhood	105	32.7 %
Snow & ice response on major City streets	27	8.4 %
Adequacy of City street lighting in your neighborhood	32	10.0 %
Condition of sidewalks in your neighborhood	44	13.7 %
On-street bicycle infrastructure (bike lanes/signs/arrows)	13	4.0 %
Accessibility of public transportation options	27	8.4 %
Availability of safe pedestrian ways on major streets & routes	61	19.0 %
Availability of safe pedestrian ways in your neighborhood	33	10.3 %
Quality of sidewalks for people with mobility challenges	27	8.4 %
Traffic calming measures in your neighborhood, for example, traffic circles, speed humps, or radar speed signs	59	18.4 %
Alternative means of transportation such as transit, bicycling, walking	25	7.8 %
None chosen	16	5.0 %
Total	612	

Q17. Public Library Services. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following Public Library services.

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q17-1. Selection of physical resources available (books, CD's, and DVD's)	21.5%	32.7%	13.1%	2.2%	0.0%	30.5%
Q17-2. Selection of digital resources available online (e.g., eBooks, downloadable audio, streaming films)	19.6%	24.6%	18.4%	1.6%	0.6%	35.2%
Q17-3. Events for seniors	6.5%	15.0%	22.7%	3.1%	0.3%	52.3%
Q17-4. Events for adults (e.g., informational, literary, participatory, entertainment)	7.2%	22.1%	25.2%	2.2%	0.6%	42.7%
Q17-5. Events for teens (e.g., Teen Advisory Council, crafts, summer reading)	6.2%	13.1%	23.4%	4.0%	0.9%	52.3%
Q17-6. Events for children (e.g., early literacy development, story times, summer reading program)	8.7%	16.5%	24.9%	2.5%	0.3%	47.0%
Q17-7. Reader's Advisory (help finding something to read)	10.3%	17.8%	21.2%	0.9%	0.0%	49.8%
Q17-8. Selection of reference & research tools	11.8%	22.7%	20.2%	0.9%	0.0%	44.2%
Q17-9. Access to computers & library Wi-Fi	14.0%	28.3%	18.4%	0.9%	0.3%	38.0%
Q17-10. Ease of booking meeting rooms	9.0%	10.3%	19.0%	0.9%	0.6%	60.1%
Q17-11. Library as hub of community information	9.3%	21.2%	25.2%	3.1%	0.3%	40.8%
Q17-12. Outreach-programs and/ or services in the community outside of the library	6.2%	11.8%	23.1%	2.2%	0.9%	55.8%

WITHOUT "DON'T KNOW"

Q17. Public Library Services. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following Public Library services. (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q17-1. Selection of physical resources available (books, CD's, and DVD's)	30.9%	47.1%	18.8%	3.1%	0.0%
Q17-2. Selection of digital resources available online (e.g., eBooks, downloadable audio, streaming films)	30.3%	38.0%	28.4%	2.4%	1.0%
Q17-3. Events for seniors	13.7%	31.4%	47.7%	6.5%	0.7%
Q17-4. Events for adults (e.g., informational, literary, participatory, entertainment)	12.5%	38.6%	44.0%	3.8%	1.1%
Q17-5. Events for teens (e.g., Teen Advisory Council, crafts, summer reading)	13.1%	27.5%	49.0%	8.5%	2.0%
Q17-6. Events for children (e.g., early literacy development, story times, summer reading program)	16.5%	31.2%	47.1%	4.7%	0.6%
Q17-7. Reader's Advisory (help finding something to read)	20.5%	35.4%	42.2%	1.9%	0.0%
Q17-8. Selection of reference & research tools	21.2%	40.8%	36.3%	1.7%	0.0%
Q17-9. Access to computers & library Wi-Fi	22.6%	45.7%	29.6%	1.5%	0.5%
Q17-10. Ease of booking meeting rooms	22.7%	25.8%	47.7%	2.3%	1.6%
Q17-11. Library as hub of community information	15.8%	35.8%	42.6%	5.3%	0.5%
Q17-12. Outreach-programs and/or services in the community outside of the library	14.1%	26.8%	52.1%	4.9%	2.1%

Q18. Which TWO of the public library items listed in Question 17 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q18. Top choice	Number	Percent
Selection of physical resources available (books, CD's, and DVD's)	44	13.7 %
Selection of digital resources available online (e.g., eBooks, downloadable audio, streaming films)	31	9.7 %
Events for seniors	35	10.9 %
Events for adults (e.g., informational, literary, participatory, entertainment)	16	5.0 %
Events for teens (e.g., Teen Advisory Council, crafts, summer reading)	17	5.3 %
Events for children (e.g., early literacy development, story times, summer reading program)	30	9.3 %
Reader's Advisory (help finding something to read)	3	0.9 %
Selection of reference & research tools	5	1.6 %
Access to computers & library Wi-Fi	6	1.9 %
Ease of booking meeting rooms	7	2.2 %
Library as hub of community information	19	5.9 %
Outreach-programs and/or services in the community outside of the library	25	7.8 %
None chosen	83	25.9 %
Total	321	100.0 %

Q18. Which TWO of the public library items listed in Question 17 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years?

Q18. 2nd choice	Number	Percent
Selection of physical resources available (books, CD's, and DVD's)	19	5.9 %
Selection of digital resources available online (e.g., eBooks, downloadable audio, streaming films)	27	8.4 %
Events for seniors	27	8.4 %
Events for adults (e.g., informational, literary, participatory, entertainment)	26	8.1 %
Events for teens (e.g., Teen Advisory Council, crafts, summer reading)	26	8.1 %
Events for children (e.g., early literacy development, story times, summer reading program)	21	6.5 %
Reader's Advisory (help finding something to read)	4	1.2 %
Selection of reference & research tools	11	3.4 %
Access to computers & library Wi-Fi	12	3.7 %
Ease of booking meeting rooms	5	1.6 %
Library as hub of community information	28	8.7 %
Outreach-programs and/or services in the community outside of the library	25	7.8 %
None chosen	90	28.0 %
Total	321	100.0 %

SUM OF TOP 2 CHOICES

Q18. Which TWO of the public library items listed in Question 17 do you think should receive the MOST EMPHASIS from City leaders over the next TWO years? (top 2)

Q18. Sum of top 2 choices	Number	Percent
Selection of physical resources available (books, CD's, and DVD's)	63	19.6 %
Selection of digital resources available online (e.g., eBooks, downloadable audio, streaming films)	58	18.1 %
Events for seniors	62	19.3 %
Events for adults (e.g., informational, literary, participatory, entertainment)	42	13.1 %
Events for teens (e.g., Teen Advisory Council, crafts, summer reading)	43	13.4 %
Events for children (e.g., early literacy development, story times, summer reading program)	51	15.9 %
Reader's Advisory (help finding something to read)	7	2.2 %
Selection of reference & research tools	16	5.0 %
Access to computers & library Wi-Fi	18	5.6 %
Ease of booking meeting rooms	12	3.7 %
Library as hub of community information	47	14.6 %
Outreach-programs and/or services in the community outside of the library	50	15.6 %
None chosen	83	25.9 %
Total	552	

Q19. How do you get information about the library?

Q19. How do you get information about the library	Number	Percent
eNewsletter	60	18.7 %
Library staff	55	17.1 %
Word of mouth	85	26.5 %
City's website	66	20.6 %
Blogs	3	0.9 %
Flyers	15	4.7 %
Newspaper	36	11.2 %
Library's social media	56	17.4 %
Other social media	24	7.5 %
Trail News	117	36.4 %
Other	8	2.5 %
Total	525	

Q19-11. Other

Q19-11. Other	Number	Percent
Library website	3	37.5 %
In person visits	2	25.0 %
Online calendar on library website	1	12.5 %
City Citizens	1	12.5 %
Visit library	1	12.5 %
Total	8	100.0 %

Q20. Capital Investments. Funding for capital investments is limited. For some projects, such as Molalla Avenue Streetscape Project, the City looks for substantial federal, state, and regional grant funds to pay for the majority of the costs. But for other projects, such as park improvements or sidewalk maintenance, we have to use local tax dollars. In looking at how we should spend your local tax dollars on capital projects over the next decade, please indicate which FIVE of the projects listed below should be the TOP PRIORITIES.

Q20. Top choice	Number	Percent
Recreation facilities such as Pioneer Community Center, End of the Oregon Trail Interpretive Center, & City pool	40	12.5 %
Park improvements & maintenance	19	5.9 %
Road maintenance/pavement preservation (such as overlay projects)	112	34.9 %
Sidewalks	23	7.2 %
Bike lanes/bike paths	4	1.2 %
Willamette Falls Legacy Project	39	12.1 %
Tourism	4	1.2 %
Natural habitat restoration	25	7.8 %
Economic development	5	1.6 %
Water infrastructure	16	5.0 %
Pedestrian crossings	3	0.9 %
Traffic congestion relief	26	8.1 %
None chosen	5	1.6 %
Total	321	100.0 %

Q20. Capital Investments. Funding for capital investments is limited. For some projects, such as Molalla Avenue Streetscape Project, the City looks for substantial federal, state, and regional grant funds to pay for the majority of the costs. But for other projects, such as park improvements or sidewalk maintenance, we have to use local tax dollars. In looking at how we should spend your local tax dollars on capital projects over the next decade, please indicate which FIVE of the projects listed below should be the TOP PRIORITIES.

Q20. 2nd choice	Number	Percent
Recreation facilities such as Pioneer Community Center, End of the Oregon Trail Interpretive Center, & City pool	19	5.9 %
Park improvements & maintenance	40	12.5 %
Road maintenance/pavement preservation (such as overlay projects)	40	12.5 %
Sidewalks	34	10.6 %
Bike lanes/bike paths	5	1.6 %
Willamette Falls Legacy Project	29	9.0 %
Tourism	14	4.4 %
Natural habitat restoration	30	9.3 %
Economic development	20	6.2 %
Water infrastructure	29	9.0 %
Pedestrian crossings	10	3.1 %
Traffic congestion relief	39	12.1 %
None chosen	12	3.7 %
Total	321	100.0 %

Q20. Capital Investments. Funding for capital investments is limited. For some projects, such as Molalla Avenue Streetscape Project, the City looks for substantial federal, state, and regional grant funds to pay for the majority of the costs. But for other projects, such as park improvements or sidewalk maintenance, we have to use local tax dollars. In looking at how we should spend your local tax dollars on capital projects over the next decade, please indicate which FIVE of the projects listed below should be the TOP PRIORITIES.

Q20. 3rd choice	Number	Percent
Recreation facilities such as Pioneer Community Center, End of the Oregon Trail Interpretive Center, & City pool	30	9.3 %
Park improvements & maintenance	23	7.2 %
Road maintenance/pavement preservation (such as overlay projects)	32	10.0 %
Sidewalks	27	8.4 %
Bike lanes/bike paths	4	1.2 %
Willamette Falls Legacy Project	28	8.7 %
Tourism	11	3.4 %
Natural habitat restoration	26	8.1 %
Economic development	30	9.3 %
Water infrastructure	28	8.7 %
Pedestrian crossings	17	5.3 %
Traffic congestion relief	36	11.2 %
None chosen	29	9.0 %
Total	321	100.0 %

Q20. Capital Investments. Funding for capital investments is limited. For some projects, such as Molalla Avenue Streetscape Project, the City looks for substantial federal, state, and regional grant funds to pay for the majority of the costs. But for other projects, such as park improvements or sidewalk maintenance, we have to use local tax dollars. In looking at how we should spend your local tax dollars on capital projects over the next decade, please indicate which FIVE of the projects listed below should be the TOP PRIORITIES.

Q20. 4th choice	Number	Percent
Recreation facilities such as Pioneer Community Center, End of the Oregon Trail Interpretive Center, & City pool	26	8.1 %
Park improvements & maintenance	29	9.0 %
Road maintenance/pavement preservation (such as overlay projects)	25	7.8 %
Sidewalks	31	9.7 %
Bike lanes/bike paths	10	3.1 %
Willamette Falls Legacy Project	19	5.9 %
Tourism	15	4.7 %
Natural habitat restoration	20	6.2 %
Economic development	31	9.7 %
Water infrastructure	15	4.7 %
Pedestrian crossings	17	5.3 %
Traffic congestion relief	30	9.3 %
None chosen	53	16.5 %
Total	321	100.0 %

Q20. Capital Investments. Funding for capital investments is limited. For some projects, such as Molalla Avenue Streetscape Project, the City looks for substantial federal, state, and regional grant funds to pay for the majority of the costs. But for other projects, such as park improvements or sidewalk maintenance, we have to use local tax dollars. In looking at how we should spend your local tax dollars on capital projects over the next decade, please indicate which FIVE of the projects listed below should be the TOP PRIORITIES.

Q20. 5th choice	Number	Percent
Recreation facilities such as Pioneer Community Center, End of the Oregon Trail Interpretive Center, & City pool	30	9.3 %
Park improvements & maintenance	24	7.5 %
Road maintenance/pavement preservation (such as overlay projects)	18	5.6 %
Sidewalks	13	4.0 %
Bike lanes/bike paths	13	4.0 %
Willamette Falls Legacy Project	20	6.2 %
Tourism	13	4.0 %
Natural habitat restoration	24	7.5 %
Economic development	26	8.1 %
Water infrastructure	18	5.6 %
Pedestrian crossings	16	5.0 %
Traffic congestion relief	29	9.0 %
None chosen	77	24.0 %
Total	321	100.0 %

SUM OF TOP 5 CHOICES

Q20. Capital Investments. Funding for capital investments is limited. For some projects, such as Molalla Avenue Streetscape Project, the City looks for substantial federal, state, and regional grant funds to pay for the majority of the costs. But for other projects, such as park improvements or sidewalk maintenance, we have to use local tax dollars. In looking at how we should spend your local tax dollars on capital projects over the next decade, please indicate which FIVE of the projects listed below should be the TOP PRIORITIES. (top 5)

Q20. Sum of top 5 choices	Number	Percent
Recreation facilities such as Pioneer Community Center, End of the Oregon Trail Interpretive Center, & City pool	145	45.2 %
Park improvements & maintenance	135	42.1 %
Road maintenance/pavement preservation (such as overlay projects)	227	70.7 %
Sidewalks	128	39.9 %
Bike lanes/bike paths	36	11.2 %
Willamette Falls Legacy Project	135	42.1 %
Tourism	57	17.8 %
Natural habitat restoration	125	38.9 %
Economic development	112	34.9 %
Water infrastructure	106	33.0 %
Pedestrian crossings	63	19.6 %
Traffic congestion relief	160	49.8 %
None chosen	5	1.6 %
Total	1434	

Q21. Service Expectations. Using a scale of 1 to 5, where 5 means the level of service provided by the City should be "Much Higher" than it is now and 1 means it should be "Much Lower," please indicate how the level of service provided by the City should change in each of the areas listed below.

(N=321)

	Much higher	A little higher	Stay the same	A little lower	Much lower	Don't know
Q21-1. Law enforcement	14.3%	38.6%	32.4%	1.9%	2.2%	10.6%
Q21-2. Parks, trails, & open space	13.1%	35.2%	39.3%	1.2%	1.2%	10.0%
Q21-3. Recreation facilities & programs	12.8%	29.9%	44.9%	1.6%	0.3%	10.6%
Q21-4. Transportation facilities & programs (street maintenance, new sidewalks, added bike lanes)	26.2%	38.9%	25.2%	2.8%	0.6%	6.2%
Q21-5. Utility infrastructure (water, sewer, & drainage system upgrades)	12.5%	34.3%	43.0%	2.5%	0.0%	7.8%
Q21-6. City's public library	2.8%	13.4%	61.4%	5.6%	2.5%	14.3%
Q21-7. City's code enforcement	10.6%	19.9%	44.5%	7.8%	5.0%	12.1%
Q21-8. City's permit review	6.2%	15.9%	39.3%	6.5%	3.4%	28.7%

WITHOUT "DON'T KNOW"

Q21. Service Expectations. Using a scale of 1 to 5, where 5 means the level of service provided by the City should be "Much Higher" than it is now and 1 means it should be "Much Lower," please indicate how the level of service provided by the City should change in each of the areas listed below. (without "don't know")

(N=321)

	Much higher	A little higher	Stay the same	A little lower	Much lower
Q21-1. Law enforcement	16.0%	43.2%	36.2%	2.1%	2.4%
Q21-2. Parks, trails, & open space	14.5%	39.1%	43.6%	1.4%	1.4%
Q21-3. Recreation facilities & programs	14.3%	33.4%	50.2%	1.7%	0.3%
Q21-4. Transportation facilities & programs (street maintenance, new sidewalks, added bike lanes)	27.9%	41.5%	26.9%	3.0%	0.7%
Q21-5. Utility infrastructure (water, sewer, & drainage system upgrades)	13.5%	37.2%	46.6%	2.7%	0.0%
Q21-6. City's public library	3.3%	15.6%	71.6%	6.5%	2.9%
Q21-7. City's code enforcement	12.1%	22.7%	50.7%	8.9%	5.7%
Q21-8. City's permit review	8.7%	22.3%	55.0%	9.2%	4.8%

Q21a. Would you be willing to pay more in taxes or fees to support an increase in the service level?

Q21a. Would you be willing to pay more in taxes or fees to support an increase in the service level	Number	Percent
Yes	104	32.4 %
No	133	41.4 %
Not applicable. I do not think any levels of service need to be higher	21	6.5 %
Don't know	63	19.6 %
Total	321	100.0 %

WITHOUT "DON'T KNOW"

Q21a. Would you be willing to pay more in taxes or fees to support an increase in the service level? (without "don't know")

Q21a. Would you be willing to pay more in taxes or fees to support an increase in the service level	Number	Percent
Yes	104	40.3 %
No	133	51.6 %
Not applicable. I do not think any levels of service need to be higher	21	8.1 %
Total	258	100.0 %

Q22. Please rate Oregon City using a scale of 1 to 5, where 5 means "Excellent" and 1 means "Poor," with regard to each of the following.

(N=321)

	Excellent	Good	Neutral	Below average	Poor	Don't know
Q22-1. As a place to live	24.3%	60.4%	9.3%	4.0%	0.9%	0.9%
Q22-2. As a place to raise children	19.6%	48.9%	15.9%	5.6%	0.9%	9.0%
Q22-3. As a place to work	10.6%	33.0%	22.4%	8.4%	3.4%	22.1%
Q22-4. As a place with a variety of housing choices	9.3%	31.2%	30.5%	13.4%	7.2%	8.4%
Q22-5. As a place to shop	5.3%	37.1%	22.1%	24.9%	9.7%	0.9%
Q22-6. As a place for dining & entertainment options	8.7%	42.7%	19.6%	21.2%	6.5%	1.2%
Q22-7. Overall quality of life in City	12.5%	63.9%	14.6%	6.9%	1.2%	0.9%
Q22-8. As a place to connect & interact with your neighbors	13.4%	43.3%	29.3%	9.7%	1.6%	2.8%

WITHOUT "DON'T KNOW"

Q22. Please rate Oregon City using a scale of 1 to 5, where 5 means "Excellent" and 1 means "Poor," with regard to each of the following. (without "don't know")

(N=321)

	Excellent	Good	Neutral	Below average	Poor
Q22-1. As a place to live	24.5%	61.0%	9.4%	4.1%	0.9%
Q22-2. As a place to raise children	21.6%	53.8%	17.5%	6.2%	1.0%
Q22-3. As a place to work	13.6%	42.4%	28.8%	10.8%	4.4%
Q22-4. As a place with a variety of housing choices	10.2%	34.0%	33.3%	14.6%	7.8%
Q22-5. As a place to shop	5.3%	37.4%	22.3%	25.2%	9.7%
Q22-6. As a place for dining & entertainment options	8.8%	43.2%	19.9%	21.5%	6.6%
Q22-7. Overall quality of life in City	12.6%	64.5%	14.8%	6.9%	1.3%
Q22-8. As a place to connect & interact with your neighbors	13.8%	44.6%	30.1%	9.9%	1.6%

Q23. Customer Service. Have you called, emailed, or visited the City with a question, problem, or complaint during the past year?

Q23. Have you called, emailed, or visited City with a question, problem, or complaint during past year	Number	Percent
Yes	116	36.1 %
No	201	62.6 %
Don't know	4	1.2 %
Total	321	100.0 %

WITHOUT "DON'T KNOW"

Q23. Customer Service. Have you called, emailed, or visited the City with a question, problem, or complaint during the past year? (without "don't know")

Q23. Have you called, emailed, or visited City with a question, problem, or complaint during past year	Number	Percent
Yes	116	36.6 %
No	201	63.4 %
Total	317	100.0 %

Q23a. How easy was it to contact the person you needed to reach?

Q23a. How easy was it to contact the person you needed to reach	Number	Percent
Very easy	43	37.1 %
Somewhat easy	47	40.5 %
Difficult	14	12.1 %
Very difficult	11	9.5 %
Don't know	1	0.9 %
Total	116	100.0 %

WITHOUT "DON'T KNOW"

Q23a. How easy was it to contact the person you needed to reach? (without "don't know")

Q23a. How easy was it to contact the person you needed to reach	Number	Percent
Very easy	43	37.4 %
Somewhat easy	47	40.9 %
Difficult	14	12.2 %
Very difficult	11	9.6 %
Total	115	100.0 %

Q23b. What department did you contact?

Q23b. What department did you contact	Number	Percent
Police	29	25.0 %
Code Enforcement	42	36.2 %
Building & Planning	35	30.2 %
Parks & Recreation	15	12.9 %
Oregon City Public Library	14	12.1 %
Event Permits	4	3.4 %
Financial Services/Utility Billing	13	11.2 %
Transportation Services (streets)	16	13.8 %
Administration (public records)	10	8.6 %
Public Works (water/sewer/solid waste)	27	23.3 %
Municipal Court	3	2.6 %
Other	5	4.3 %
Total	213	

Q23b-12. Other:

Q23b-12. Other	Number	Percent
Animal	1	20.0 %
Traffic	1	20.0 %
Arts and entertainment	1	20.0 %
Street lights	1	20.0 %
City Manager	1	20.0 %
Total	5	100.0 %

Q23c. Several factors that may influence your perception of the quality of customer service you receive from City employees are listed below. For each item, please rate how often the employees you have contacted during the past year have displayed the behavior described on a scale of 1 to 5, where 5 means "Always" and 1 means "Never."

(N=116)

	Always	Usually	Sometimes	Seldom	Never	Don't know
Q23c-1. They were courteous & polite	58.6%	26.7%	9.5%	2.6%	0.9%	1.7%
Q23c-2. They gave prompt, accurate, & complete answers to questions	44.0%	30.2%	16.4%	5.2%	1.7%	2.6%
Q23c-3. They did what they said they would do in a timely manner	41.4%	28.4%	12.1%	6.9%	3.4%	7.8%
Q23c-4. They helped you resolve an issue to your satisfaction	34.5%	24.1%	22.4%	6.9%	6.0%	6.0%

WITHOUT "DON'T KNOW"

Q23c. Several factors that may influence your perception of the quality of customer service you receive from City employees are listed below. For each item, please rate how often the employees you have contacted during the past year have displayed the behavior described on a scale of 1 to 5, where 5 means "Always" and 1 means "Never." (without "don't know")

(N=116)

	Always	Usually	Sometimes	Seldom	Never
Q23c-1. They were courteous & polite	59.6%	27.2%	9.6%	2.6%	0.9%
Q23c-2. They gave prompt, accurate, & complete answers to questions	45.1%	31.0%	16.8%	5.3%	1.8%
Q23c-3. They did what they said they would do in a timely manner	44.9%	30.8%	13.1%	7.5%	3.7%
Q23c-4. They helped you resolve an issue to your satisfaction	36.7%	25.7%	23.9%	7.3%	6.4%

Q24. Land Development. Using a scale of 1 to 5, where 5 means "Much Too Slow" and 1 means "Much Too Fast," please rate the City's current pace of development in each of the following areas.

(N=321)

	Much too slow	Too slow	Just right	Too fast	Much too fast	Don't know
Q24-1. Employment opportunities	4.0%	26.2%	20.9%	1.6%	0.6%	46.7%
Q24-2. Office development	1.6%	12.1%	28.0%	4.7%	2.8%	50.8%
Q24-3. Retail/restaurants/services	8.4%	35.8%	38.6%	3.7%	0.3%	13.1%
Q24-4. Technology & other industry	9.0%	29.0%	21.8%	3.1%	0.6%	36.4%
Q24-5. Housing options for aging population	14.6%	34.6%	20.2%	0.9%	0.6%	29.0%
Q24-6. Apartments	5.3%	13.7%	25.5%	20.6%	10.9%	24.0%
Q24-7. Townhomes/row houses	4.4%	11.5%	24.3%	21.2%	11.8%	26.8%
Q24-8. Entry-level single-family homes	15.6%	26.2%	28.3%	4.7%	3.7%	21.5%
Q24-9. Single family homes	9.7%	16.2%	39.9%	9.7%	3.4%	21.2%

WITHOUT "DON'T KNOW"

Q24. Land Development. Using a scale of 1 to 5, where 5 means "Much Too Slow" and 1 means "Much Too Fast," please rate the City's current pace of development in each of the following areas. (without "don't know")

(N=321)

	Much too slow	Too slow	Just right	Too fast	Much too fast
Q24-1. Employment opportunities	7.6%	49.1%	39.2%	2.9%	1.2%
Q24-2. Office development	3.2%	24.7%	57.0%	9.5%	5.7%
Q24-3. Retail/restaurants/services	9.7%	41.2%	44.4%	4.3%	0.4%
Q24-4. Technology & other industry	14.2%	45.6%	34.3%	4.9%	1.0%
Q24-5. Housing options for aging population	20.6%	48.7%	28.5%	1.3%	0.9%
Q24-6. Apartments	7.0%	18.0%	33.6%	27.0%	14.3%
Q24-7. Townhomes/row houses	6.0%	15.7%	33.2%	28.9%	16.2%
Q24-8. Entry-level single-family homes	19.8%	33.3%	36.1%	6.0%	4.8%
Q24-9. Single family homes	12.3%	20.6%	50.6%	12.3%	4.3%

Q25. Water Quality. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following items.

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know
Q25-1. Water pressure	26.2%	53.0%	10.3%	6.2%	2.2%	2.2%
Q25-2. Water clarity	27.7%	54.8%	9.7%	4.0%	0.6%	3.1%
Q25-3. Water taste	24.9%	46.1%	12.1%	11.5%	2.8%	2.5%
Q25-4. Water smell	24.3%	50.8%	13.7%	6.9%	1.9%	2.5%
Q25-5. Reliability of water service	35.2%	53.0%	8.4%	0.6%	0.6%	2.2%

WITHOUT "DON'T KNOW"

Q25. Water Quality. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following items. (without "don't know")

(N=321)

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Q25-1. Water pressure	26.8%	54.1%	10.5%	6.4%	2.2%
Q25-2. Water clarity	28.6%	56.6%	10.0%	4.2%	0.6%
Q25-3. Water taste	25.6%	47.3%	12.5%	11.8%	2.9%
Q25-4. Water smell	24.9%	52.1%	14.1%	7.0%	1.9%
Q25-5. Reliability of water service	36.0%	54.1%	8.6%	0.6%	0.6%

Q26. Approximately how many years have you lived in Oregon City?

Q26. How many years have you lived in Oregon City	Number	Percent
0-5	68	21.2 %
6-10	40	12.5 %
11-15	34	10.6 %
16-20	39	12.1 %
21-30	61	19.0 %
31+	72	22.4 %
Not provided	7	2.2 %
Total	321	100.0 %

WITHOUT "NOT PROVIDED"

Q26. Approximately how many years have you lived in Oregon City? (without "not provided")

Q26. How many years have you lived in Oregon City	Number	Percent
0-5	68	21.7 %
6-10	40	12.7 %
11-15	34	10.8 %
16-20	39	12.4 %
21-30	61	19.4 %
31+	72	22.9 %
Total	314	100.0 %

Q27. What is the preferred language spoken in your home?

Q27. Preferred language spoken in your home	Number	Percent
English	311	98.4 %
Spanish	2	0.6 %
German	1	0.3 %
Hindi	1	0.3 %
Fillipino	1	0.3 %
Total	316	100.0 %

Q28. What is your age?

Q28. Your age	Number	Percent
18-34	59	18.4 %
35-44	63	19.6 %
45-54	63	19.6 %
55-64	58	18.1 %
65+	67	20.9 %
Not provided	11	3.4 %
Total	321	100.0 %

WITHOUT "NOT PROVIDED"

Q28. What is your age? (without "not provided")

Q28. Your age	Number	Percent
18-34	59	19.0 %
35-44	63	20.3 %
45-54	63	20.3 %
55-64	58	18.7 %
65+	67	21.6 %
Total	310	100.0 %

Q29. Do you work outside of Oregon City?

Q29. Do you work outside of Oregon City	Number	Percent
Yes	144	44.9 %
No	169	52.6 %
Not provided	8	2.5 %
Total	321	100.0 %

WITHOUT "NOT PROVIDED"

Q29. Do you work outside of Oregon City? (without "not provided")

Q29. Do you work outside of Oregon City	Number	Percent
Yes	144	46.0 %
No	169	54.0 %
Total	313	100.0 %

Q30. How many children under age 18 live in your household?

Q30. How many children under age 18 live in your household	Number	Percent
0	208	64.8 %
1	49	15.3 %
2	51	15.9 %
3+	13	4.0 %
Total	321	100.0 %

Q31. What is your gender?

Q31. Your gender	Number	Percent
Male	156	48.6 %
Female	163	50.8 %
Not provided	2	0.6 %
Total	321	100.0 %

WITHOUT "NOT PROVIDED"

Q31. What is your gender? (without "not provided")

Q31. Your gender	Number	Percent
Male	156	48.9 %
Female	163	51.1 %
Total	319	100.0 %

Q32. Would you say your total annual household income is...

Q32. Your total annual household income	Number	Percent
Under $50K	58	18.1 %
$50K to $74,999	58	18.1 %
$75K to $99,999	63	19.6 %
$100K to $149,999	66	20.6 %
$150K to $199,999	20	6.2 %
$200K+	19	5.9 %
Not provided	37	11.5 %
Total	321	100.0 %

WITHOUT "NOT PROVIDED"

Q32. Would you say your total annual household income is... (without "not provided")

Q32. Your total annual household income	Number	Percent
Under $50K	58	20.4 %
$50K to $74,999	58	20.4 %
$75K to $99,999	63	22.2 %
$100K to $149,999	66	23.2 %
$150K to $199,999	20	7.0 %
$200K+	19	6.7 %
Total	284	100.0 %

5 Survey Instrument

OREGON CITY

Office of the City Manager

625 Center Street | PO Box 3040 | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7026

Dear Oregon City Resident,

The City Commission and Oregon City staff believe it is crucial to ask our residents whether they are satisfied with the services we provide. Asking questions ensures that the City's priorities are aligned with the needs of our residents; we need to know what you think.

Your household was one of a limited number selected at random to receive this survey, and your participation is necessary to make the survey a success.

We greatly appreciate your time. We realize that this survey takes some time to complete, but every question is essential. The time you invest in this survey will influence decisions that will be made about the City's future. Your responses will also help the City Commissioners gauge the success of their or the City's efforts to carry out the community's vision for the City of Oregon City and to address the many opportunities and challenges it faces. Oregon City's adopted *vision* is to embrace and advance Oregon City's historic role as a regional leader, and our *mission* is to build a dynamic community that leads the State in safety, economic opportunity, livability, and historic significance.

2021-2023 City Commission Goals. The City Commission goals prioritize significant projects and help to shape the budget we operate under. The Commission has adopted the following goals for the City; which are to: Promote diversity, equity, and inclusion for a safe, inclusive community, and organization; Invest in current and future capital needs for safe, sustainable infrastructure and city services; Improve the City's engagement efforts to reach the broader Oregon City community and inform the policy process; Adopt and implement a homelessness strategy for Oregon City; Promote tourism and support economic development to foster community sustainability; Support diverse housing options in Oregon City; and Support improvements and partnerships that contribute to our hometown feel and showcase Oregon City's unique community identity.

Please return your survey or complete it online sometime during the next week. We have selected ETC Institute to administer this survey. Your responses will remain confidential. ETC Institute will present the results to the City in March or April. Please return your survey in the enclosed postage-paid envelope addressed to ETC Institute, 725 W. Frontier Circle, Olathe, Kansas, 66061 or go to *oregoncitysurvey.org* to complete the survey online. If you have any questions, please contact the City of Oregon City at (503) 657-0891. Thank you very much for taking the time to provide your valuable input to help us understand your priorities, concerns, and insights, and the opportunities that we have in this wonderful City, it is greatly appreciated.

Sincerely,

Tony Konkol

Tony Konkol
City of Oregon City, City Manager

2023 City of Oregon City Community Survey

Please take a few minutes to complete this survey. Your input is important to help Oregon City identify and respond to citizen concerns. If you have questions, please call 503-496-1547.

1. <u>Perception of the City.</u> Please rate each of the following major categories of services provided by the City of Oregon City using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
01.	Overall quality of police services	5	4	3	2	1	9
02.	Overall quality of the city's recreation programs	5	4	3	2	1	9
03.	Overall quality of city parks/trails/open space	5	4	3	2	1	9
04.	Overall maintenance of city streets	5	4	3	2	1	9
05.	Overall quality of city water utilities	5	4	3	2	1	9
06.	Overall quality of city sewer services	5	4	3	2	1	9
07.	Overall quality of Municipal Court Services	5	4	3	2	1	9
08.	Overall enforcement of city codes and ordinances	5	4	3	2	1	9
09.	Overall quality of customer service you receive from city employees	5	4	3	2	1	9
10.	Overall effectiveness of city communication with the public	5	4	3	2	1	9
11.	Overall effectiveness of city economic development efforts	5	4	3	2	1	9
12.	Overall quality of the city's public library services	5	4	3	2	1	9
13.	Overall quality of permit process	5	4	3	2	1	9

2. Which THREE of the items listed in Question 1 do you think should receive the MOST EMPHASIS from city leaders over the next TWO years? *[Write in your answers below using the numbers from the list in Question 1.]*

1st: ____ 2nd: ____ 3rd: ____

3. Please rate each of the following items that may influence your perception of the City of Oregon City using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
1.	Overall quality of services provided by the City of Oregon City	5	4	3	2	1	9
2.	Overall value that you receive for your tax dollars and fees	5	4	3	2	1	9
3.	Overall image of the city	5	4	3	2	1	9
4.	How well the city is supporting growth and development	5	4	3	2	1	9
5.	Overall feeling of safety in the city	5	4	3	2	1	9
6.	Availability of job opportunities	5	4	3	2	1	9
7.	Availability of training or educational opportunities	5	4	3	2	1	9
8.	Overall quality of new development	5	4	3	2	1	9
9.	Overall development across the city	5	4	3	2	1	9

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4. <u>Parks and Recreation.</u> Please rate your satisfaction with each of the following Park Recreation items using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
01.	Quality of facilities (e.g., picnic shelters, playgrounds in city parks)	5	4	3	2	1	9
02.	Quality of outdoor athletic fields (e.g., baseball, soccer, football)	5	4	3	2	1	9
03.	Appearance and maintenance of existing city parks	5	4	3	2	1	9
04.	Proximity of parks to your home	5	4	3	2	1	9
05.	Quantity of city trails	5	4	3	2	1	9
06.	Access to city parks for persons with disabilities	5	4	3	2	1	9
07.	Quality of the Pioneer Community Center	5	4	3	2	1	9
08.	Quality of the End of the Oregon Trail	5	4	3	2	1	9
09.	Quality of the city's swimming pool	5	4	3	2	1	9
10.	Quality of services for fees assessed with recreation programing (e.g., pool programs, admission, and camps)	5	4	3	2	1	9
11.	Quality of recreational areas for dogs	5	4	3	2	1	9
12.	Other: _____	5	4	3	2	1	9

5. Which TWO of the Parks and Recreation items listed in Question 4 do you think should receive the MOST EMPHASIS from city leaders over the next TWO years? *[Write in your answers below using the numbers from the list in Question 4.]*

1st: ____ 2nd: ____

6. How willing would you be to pay additional taxes or fees to acquire, develop, and maintain the types of parks, recreation, and trail facilities that are most important to your household?

____(5) Very willing ____(3) Neutral ____(1) Not at all willing
____(4) Willing ____(2) Not willing ____(9) Don't know

7. How satisfied are you with…

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
1.	The City creating a diverse, inclusive, and fair community.	5	4	3	2	1	9
2.	The City helps residents feel connected and integrated into the community.	5	4	3	2	1	9

8. <u>Public Safety.</u> Please rate each of the public safety items listed below using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
1.	The visibility of police in the community	5	4	3	2	1	9
2.	The city's overall efforts to prevent crime	5	4	3	2	1	9
3.	Enforcement of local traffic laws	5	4	3	2	1	9
4.	Parking enforcement services	5	4	3	2	1	9
5.	How quickly police respond to emergencies	5	4	3	2	1	9
6.	Response to drug control	5	4	3	2	1	9
7.	Response to property crime	5	4	3	2	1	9
8.	Level of community outreach	5	4	3	2	1	9
9.	Response to issues with transients	5	4	3	2	1	9

9. Which TWO of the public safety items listed in Question 8 do you think should receive the MOST EMPHASIS from city leaders over the next TWO years? [*Write in your answers below using the numbers from the list in Question 8.]*

1st: ____ 2nd: ____

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10. <u>Communication.</u> Where do you currently get news and information about city programs, se and events? *[Check all that apply.]*

____(01) "Trail News" quarterly publication
____(02) City website
____(03) Newspaper
____(04) Friends
____(05) Radio
____(06) Social media (Facebook, Twitter, Instagram, LinkedIn)
____(07) Public meetings
____(08) City's mobile app ("OC Request")
____(09) YouTube
____(10) Citizen Involvement Committee
____(11) TV local news
____(12) Nextdoor
____(13) Neighborhood Association
____(14) Utility bill
____(15) Flyers
____(16) E-Trail News Monthly e-newsletter
____(17) Other: _____

10a. From which TWO sources listed in Question 10 would you MOST PREFER to get information from the city? *[Write in your answers below using the numbers from the list in Question 10.]*

1st: ____ 2nd: ____

10b. How frequently would you like to receive information from the city? *[Write in your top two choices using numbers from the list below, or circle "Don't Know."]*

1. Daily 2. Weekly 3. Monthly 4. Quarterly

1st: ____ 2nd: ____ Don't Know

11. Which of the following types of information would you like to receive from the City of Oregon City? *[Check all that apply.]*

____(1) The City Commission's goals meeting wrap up
____(2) Public safety (police)
____(3) Public works (infrastructure and transportation updates)
____(4) Special events
____(5) Community-based stories (what is going on locally)
____(6) Economic development
____(7) Library services and programs
____(8) Parks and Recreation programs and services
____(9) Other: _____

12. Please rate each of the communication items listed below using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
1.	The availability of information about city programs and services	5	4	3	2	1	9
2.	Overall quality of the city's website	5	4	3	2	1	9
3.	The level of public involvement in decision making	5	4	3	2	1	9
4.	Timeliness of information provided by the city	5	4	3	2	1	9
5.	The quality of content on social media (Facebook, Twitter, Instagram)	5	4	3	2	1	9
6.	Access to bilingual material	5	4	3	2	1	9

13. <u>Code Enforcement.</u> Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following code enforcement items.

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
1.	Enforcing the cleanup of litter and debris on private property	5	4	3	2	1	9
2.	Enforcing the mowing/trimming of grass and weeds on private property	5	4	3	2	1	9
3.	Enforcing codes designed to protect public safety and health	5	4	3	2	1	9
4.	Enforcing sign regulation	5	4	3	2	1	9

14. Which TWO of the code enforcement items listed in Question 13 do you think should receive the MOST EMPHASIS from city leaders over the next TWO years? *[Write in your answers below using the numbers from the list in Question 13.]*

1st: ____ 2nd: ____

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15. <u>Transportation and Infrastructure.</u> Please rate each of the following street maintenance/s items using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
01.	Maintenance of major city streets	5	4	3	2	1	9
02.	Maintenance of streets in your neighborhood	5	4	3	2	1	9
03.	Snow and ice response on major city streets	5	4	3	2	1	9
04.	Adequacy of city street lighting in your neighborhood	5	4	3	2	1	9
05.	Condition of sidewalks in your neighborhood	5	4	3	2	1	9
06.	On-street bicycle infrastructure (bike lanes/signs/arrows)	5	4	3	2	1	9
07.	Accessibility of public transportation options	5	4	3	2	1	9
08.	Availability of safe pedestrian ways on major streets and routes	5	4	3	2	1	9
09.	Availability of safe pedestrian ways in your neighborhood	5	4	3	2	1	9
10.	Quality of sidewalks for people with mobility challenges	5	4	3	2	1	9
11.	Traffic calming measures in your neighborhood, for example traffic circles, speed humps, or radar speed signs	5	4	3	2	1	9
12.	Alternative means of transportation such as transit, bicycling, walking	5	4	3	2	1	9

16. Which TWO of the transportation and infrastructure items listed in Question 15 do you think should receive the MOST EMPHASIS from city leaders over the next TWO years? *[Write in your answers below using the numbers from the list in Question 15.]*

1st: ____ 2nd: ____

17. <u>Public Library Services.</u> Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following Public Library services.

	How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
01.	Selection of physical resources available (books, CD's, and DVD's)	5	4	3	2	1	9
02.	Selection of digital resources available online (e.g., eBooks, downloadable audio, streaming films)	5	4	3	2	1	9
03.	Events for seniors	5	4	3	2	1	9
04.	Events for adults (e.g., informational, literary, participatory, entertainment)	5	4	3	2	1	9
05.	Events for teens (e.g., Teen Advisory Council, crafts, summer reading)	5	4	3	2	1	9
06.	Events for children (e.g., early literacy development, story times, summer reading program)	5	4	3	2	1	9
07.	Reader's Advisory (help finding something to read)	5	4	3	2	1	9
08.	Selection of reference and research tools	5	4	3	2	1	9
09.	Access to computers and library Wi-Fi	5	4	3	2	1	9
10.	Ease of booking meeting rooms	5	4	3	2	1	9
11.	Library as hub of community information	5	4	3	2	1	9
12.	Outreach-programs and/or services in the community outside of the library	5	4	3	2	1	9

18. Which TWO of the public library items listed in Question 17 do you think should receive the MOST EMPHASIS from city leaders over the next TWO years? *[Write in your answers below using the numbers from the list in Question 17.]*

1st: ____ 2nd: ____

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19. How do you get information about the library? *[Check all that apply.]*

____(01) E-newsletter
____(02) Library staff
____(03) Word of mouth
____(04) City's website
____(05) Blogs
____(06) Flyers
____(07) Newspaper
____(08) Library's social media
____(09) Others social media
____(10) Trail News
____(11) Other: _____

20. <u>Capital Investments.</u> Funding for capital investments is limited. For some projects, such as Molalla Avenue Streetscape Project, the city looks for substantial federal, state, and regional grant funds to pay for the majority of the costs. But for other projects, such as park improvements or sidewalk maintenance, we have to use local tax dollars. In looking at how we should spend your local tax dollars on capital projects over the next decade, please indicate which FIVE of the projects listed below should be the TOP PRIORITIES. *[Write in your answers using the numbers from the list below.]*

01. Recreation facilities such as Pioneer Community Center, End of the Oregon Trail Interpretive Center, and city pool
02. Park improvements and maintenance
03. Road maintenance/pavement preservation (such as overlay projects)
04. Sidewalks
05. Bike lanes/bike paths
06. Willamette Falls Legacy Project
07. Tourism
08. Natural habitat restoration
09. Economic development
10. Water infrastructure
11. Pedestrian crossings
12. Traffic congestion relief

1st: _____ 2nd: _____ 3rd: _____ 4th: _____ 5th: _____

21. <u>Service Expectations.</u> Using a scale of 1 to 5, where 5 means the level of service provided by the city should be "Much Higher" than it is now and 1 means it should be "Much Lower," please indicate how the level of service provided by the city should change in each of the areas listed below.

		Much Higher	A Little Higher	Stay the Same	A Little Lower	Much Lower	Don't Know
1.	Law enforcement	5	4	3	2	1	9
2.	Parks, trails, and open space	5	4	3	2	1	9
3.	Recreation facilities and programs	5	4	3	2	1	9
4.	Transportation facilities and programs (street maintenance, new sidewalks, added bike lanes)	5	4	3	2	1	9
5.	Utility infrastructure (water, sewer, and drainage system upgrades)	5	4	3	2	1	9
6.	City's public library	5	4	3	2	1	9
7.	City's code enforcement	5	4	3	2	1	9
8.	City's permit review	5	4	3	2	1	9

21a. Would you be willing to pay more in taxes or fees to support an increase in the service level?

____(1) Yes
____(2) No
____(3) Not applicable; I do not think any levels of service need to be higher
____(9) Don't know

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22. Please rate Oregon City using a scale of 1 to 5, where 5 means "Excellent" and 1 means " with regard to each of the following.

	How would you rate Oregon City...	Excellent	Good	Neutral	Below Average	Poor	Don't Know
1.	As a place to live	5	4	3	2	1	9
2.	As a place to raise children	5	4	3	2	1	9
3.	As a place to work	5	4	3	2	1	9
4.	As a place with a variety of housing choices	5	4	3	2	1	9
5.	As a place to shop	5	4	3	2	1	9
6.	As a place for dining and entertainment options	5	4	3	2	1	9
7.	Overall quality of life in the city	5	4	3	2	1	9
8.	As a place to connect and interact with your neighbors	5	4	3	2	1	9

23. <u>Customer Service.</u> Have you called, emailed, or visited the city with a question, problem, or complaint during the past year?

____(1) Yes *[Answer Q23a-c.]* ____(2) No *[Skip to Q24.]* ____(9) Don't know *[Skip to Q24.]*

23a. How easy was it to contact the person you needed to reach?

____(4) Very easy ____(2) Difficult ____(9) Don't know
____(3) Somewhat easy ____(1) Very difficult

23b. What department did you contact? *[Check all that apply.]*

____(01) Police
____(02) Code Enforcement
____(03) Building and Planning
____(04) Parks and Recreation
____(05) Oregon City Public Library
____(06) Event Permits
____(07) Financial Services/Utility Billing
____(08) Transportation Services (streets)
____(09) Administration (public records)
____(10) Public Works (water/sewer/solid waste)
____(11) Municipal Court
____(12) Other: _____

23c. Several factors that may influence your perception of the quality of customer service you receive from city employees are listed below. For each item, please rate how often the employees you have contacted during the past year have displayed the behavior described on a scale of 1 to 5, where 5 means "Always" and 1 means "Never."

	Frequency that...	Always	Usually	Sometimes	Seldom	Never	Don't Know
1.	They were courteous and polite	5	4	3	2	1	9
2.	They gave prompt, accurate, and complete answers to questions	5	4	3	2	1	9
3.	They did what they said they would do in a timely manner	5	4	3	2	1	9
4.	They helped you resolve an issue to your satisfaction	5	4	3	2	1	9

24. <u>Land Development.</u> Using a scale of 1 to 5, where 5 means "Much Too Slow" and 1 means "Much Too Fast," please rate the city's current pace of development in each of the following areas.

	Growth Management	Much Too Slow	Too Slow	Just Right	Too Fast	Much Too Fast	Don't Know
1.	Employment opportunities	5	4	3	2	1	9
2.	Office development	5	4	3	2	1	9
3.	Retail/Restaurants/Services	5	4	3	2	1	9
4.	Technology and other industry	5	4	3	2	1	9
5.	Housing options for aging population	5	4	3	2	1	9
6.	Apartments	5	4	3	2	1	9
7.	Townhomes/Row houses	5	4	3	2	1	9
8.	Entry-level single-family homes	5	4	3	2	1	9
9.	Single Family Homes	5	4	3	2	1	9

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25. Water Quality. Using a scale of 1 to 5, where 5 means "Very Satisfied" and 1 means "Very Dissatisfied," please rate your satisfaction with each of the following items.

How satisfied are you with...	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
1. Water pressure	5	4	3	2	1	9
2. Water clarity	5	4	3	2	1	9
3. Water taste	5	4	3	2	1	9
4. Water smell	5	4	3	2	1	9
5. Reliability of water service	5	4	3	2	1	9

Demographics

26. Approximately how many years have you lived in Oregon City? _____ years

27. What is the preferred language spoken in your home? _____

28. What is your age? _____ years

29. Do you work outside of Oregon City? ____(1) Yes ____(2) No

30. How many children under age 18 live in your household? _____ children

31. What is your gender? ____(1) Male ____(2) Female

32. Would you say your total annual household income is...

____(1) Under $50,000
____(2) $50,000 to $74,999
____(3) $75,000 to $99,999
____(4) $100,000 to $149,999
____(5) $150,000 to $199,999
____(6) $200,000 or more

33. If you have suggestions for improving the quality of city programs, facilities, or services, please write your suggestions in the space below.

_____

_____

_____

34. Would you be willing to participate in future surveys sponsored by the City of Oregon City?

____(1) Yes *[Please answer Q34a.]* ____(2) No

34a. Please provide your contact information.

Mobile Phone Number: _____

Email Address: _____

This concludes the survey. Thank you for your time!

Please return your completed survey in the enclosed postage-paid envelope addressed to:
ETC Institute, 725 W. Frontier Circle, Olathe, KS 66061

Your responses will remain completely confidential. The information printed to the right will ONLY be used to help identify which areas of the city are having difficulties with city services. If your address is not correct, please provide the correct information. Thank you.

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CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 4/19/2023

From: Public Works Director John M. Lewis, PE

SUBJECT:

Resolution No. 23-06: Adoption of Street Design Standards

STAFF RECOMMENDATION:

Staff recommends approval of Resolution No. 23-06 adopting the Street Design Standards.

EXECUTIVE SUMMARY:

The City has prepared Street Design Standards which are consistent with local, regional, and State guidelines, as well as City Code, City Policies, and City Transportation Planning documents. The Street Design Standards will supplement the documents already existing within the City. The Street Design Standards cover such things as pavement design, street lighting design, roadway geometrics, and many others.

An overview of the Street Design Standards was presented in October 2022. Revisions were made and comments were addressed during a Work Session in March 2023.

Staff recommends approval of Resolution No. 23-06 adopting the Street Design Standards.

BACKGROUND:

On August 18, 2021, City Commission approved a contract to have Kittelson & Associates prepare the Street Design Standards for the City of Oregon City. Over the past 18 months, Kittelson has drafted standards through coordination and review by several City divisions and departments including Engineering, Streets, Sewers, Water, Planning, Construction, and Permitting. Public input was sought by using social media, the City webpage, the Transportation Advisory Committee, and the Development Stakeholders Group. The standards were revised based on comments from all parties. Once a final draft was completed, all parties had a final chance to comment, but instead stated that their comments had been adequately addressed.

The City uses technical design standards to ensure consistency within the public infrastructure of the city and to follow current practices and standards within the industry. The City currently has Design Standards for Public Water, Public Sanitary Sewer, and Stormwater and Grading Design. However, the City does not have any technical standards for the roadway system except for some policies and transportation planning documents.

This project was budgeted in FY 2021-22. The Street Design Standards supplement the documents already existing within the City. The Street Design Standards cover such things as pavement design, street lighting design, and roadway geometrics.

A response memo to the March 2023 Work Session is included as well as a redline version and final “clean” version of the Standards for review. The resolution to adopt the Standards is included as well.

OPTIONS:

1. Adopt the Street Design Standards
2. Request additional revisions and seek adoption of revised standards at a future City Commission meeting.

BUDGET IMPACT:

Amount: $0.00

FY(s): N/A

Funding Source(s): N/A

RESOLUTION NO. 23-06

A RESOLUTION TO ESTABLISH STREET DESIGN STANDARDS

WHEREAS, the City of Oregon City has jurisdiction over various roads, rights-of-way, and multi-use paths within the city commonly called the Transportation System; and

WHEREAS, the City of Oregon City operates and maintains 144 miles of streets and 164 miles of sidewalks which consist of 961 acres of rights-of-way; and

WHEREAS, the City of Oregon City contains 50 signalized intersections; and

WHEREAS, the City of Oregon City operates and maintains over 375 street lights; and

WHEREAS, the City finds it necessary to establish and implement uniform engineering design standards for all Public Works Transportation projects in the interest of health, safety, and welfare of the residents of Oregon City; and

WHEREAS, the design standards will supplement existing Standard Drawings, Municipal Code, Concept Plans, Design Standards and Manuals; and

WHEREAS, the design standards will incorporate the existing Molalla Streetscape Standards; and

NOW, THEREFORE, OREGON CITY RESOLVES AS FOLLOWS:

Section 1. The Commission, by this Resolution, adopts the Public Works Street Design Standards, attached to this resolution as Exhibit A, for application to all City-owned and maintained right-of-way and transportation-related improvements.

Section 2. This resolution shall take effect immediately upon its adoption by the City Commission.

Section 3. The Commission, by this Resolution, empowers the City Engineer to periodically update these Standards as needed to maintain currency with municipal code, concept plans, and standard engineering practices and standards.

Approved and adopted at a regular meeting of the City Commission held on the 19th day of April 2023.

Denyse C. McGriff, Mayor

Attested to this 19th day of April 2023:

Jakob Wiley, City Recorder

Approved as to legal sufficiency:

City Attorney

Exhibit A: Street Design Standards

OREGON CITY

Public Works

13895 Fir Street | Oregon City OR 97045
Ph (971) 204-4601

MEMORANDUM

Date: March 30, 2023
To: Oregon City Commission
From: Julia Knudsen, PE, Hermanus Steyn, Pr.Eng., P.E., Kittelson & Associates, Inc.
CC: Josh Wheeler, PE, Assistant City Engineer

RE: Street Design Standards
Response to City Commission Comments from Meeting on March 7, 2023

The following is a response to questions/comments posed by City Commission during the March 7, 2023 meeting.

Comment 1: Please include a summary of the chapters in Chapter 1.

> ***Answer 1:*** *Chapter 1, Section 1.2, Table 1-1 includes a brief overview of the primary topics included in each chapter of the Standards.*

Comment 2: Please revise and clarify the Standards' relationship to existing City Concept Plans and Planning Studies.

> ***Answer 2:*** *In Chapter 1, Section 1.4, the text regarding the Standards relationship to the existing City Concept Plans and Planning Studies has been revised to note that the Standards provide technical criteria to support Oregon City Concept Plans, Corridor Plans, and Studies. The Standards do not intend to change the vision and goals presented in existing plans and studies. The Standards take precedence over technical criteria presented in other City plans and studies, if conflicts exist. In addition, a statement to note the design flexibility contained within the standards to meet the needs of specific community goals and the process for implementing design flexibility is referenced.*

Comment 3: Please clarify the standards for bicycle facilities presented in Chapter 3: Geometric Design and Chapter 4: Multimodal Design.

> ***Answer 3:*** *The text describing the standards for bicycle facilities presented in Chapter 3, Section 3.1, Table 3-1 and Chapter 4, Section 4.2 has been updated to present consistent standards and guidance in both sections. The minimum bicycle facility requirement is on-street buffered bicycle lanes, but the preferred solution is to provide separated bicycle facilities.*

Comment 4: Please add information about the new state laws regarding setting speed limits.

> ***Answer 4:*** *Chapter 5, Section 5.1 has been updated to include information regarding the state law went into effect in January 2023 that allows cities to set and change speed limits, as described in ORS 810.180 (5)(f) and ORS 810.180 (5)(g).*

Comment 5: Please consider additional types of litter receptacles to be used within the City.

> ***Answer 5:*** *Chapter 5, Section 5.8.5 has been updated to include text that requires designers to verify the current design to be used when needing to add these to their project. This will allow additional design types to be included in projects as they become identified.*

Comment 6: Please update the information about decorative street lighting to summarize existing types used and encourage consistency throughout the City.

> ***Answer 6:*** *Chapter 5, Section 5.8.6 includes additional references to the expanded decorative street lighting information presented in Chapter 9. Chapter 9 has been updated to note that designers can find information for lighting color/temperature, and dark sky characteristics in the PGE approved list and City standard drawings. A new section of standards was added as Section 9.4: Light Fixtures to summarize the types and location of various light fixtures throughout the City. This includes two additional summary tables, Table 9-5 and Table 9-6.*

Additional City Staff Edits: The following updates were added based on direction from City staff to clarify additional standard information.

- Chapter 3, Section 3.9: Driveways – Added references to City code for driveway standards and updated minimum approach widths for duplex and 3- and 4-plex uses.
- Chapter 3, Section 3.12: Fire Standards – Added a note that designers should follow most recent fire code if a newer version exists.
- Chapter 5, Section 5.7: Pavement Markings – Added a note that all intersections that include stop signs shall include painted stop bars.
- Chapter 6, Section 6.1: General Requirements for Pavement – Added a note that all asphalt pavement should be placed during temperatures that are 40 degrees Fahrenheit and rising.

Street Design Standards

City of Oregon City

April 2023

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1.0 INTRODUCTION

Chapter 1 introduces the *Oregon City Street Design Standards (Standards)* by describing the purpose, intended use, and project team roles. Additional relevant resources support the material provided in the *Standards.* Chapter 1 also includes an overview of overarching topics, such as performance-based design, context-based design, equitable development of climate friendly neighborhoods, and green streets.

1.1 PURPOSE AND INTENDED USE

The Standards intend to implement Oregon City Municipal Code (OCMC), guide private development, and provide criteria for capital improvement projects. The *Standards* include engineering guidelines for constructing public and private improvements, serving new and future developments, and reconstructing existing facilities to upgrade existing infrastructure. These *Standards* apply to all public improvements within the existing public right-of-way (ROW) or any recorded easements, all improvements from new developments required within the proposed public rights-of-way or public easements, all improvements intended for maintenance by the City of Oregon City (City), and all other improvements that require the City's approval. The City Standard Drawings provide additional construction details required for a permit or a set of plans.

The *Standards* are available online at:
Oregon City Street Design Standards
https://www.orcity.org/publicworks/design-and-construction-standardsdrawings

This website will contain the most recently adopted *Standards*, the Standard Drawings, Americans with Disabilities Act (ADA) design and inspection checklists, the Design Modification Request form, and other materials. The City of Oregon City Municipal Code takes precedence if conflict exists with these *Standards*.

1.2 CHAPTER OVERVIEW

Table 1-1 provides an overview of each chapter in the *Standards.*

Table 1-1: Chapter Overview

Chapter	Overview
Chapter 1: Introduction	Provides purpose and intended use, references to support the Standards, and includes encouragement and guidance to use green street designs and climate friendly approaches to future designs.
Chapter 2: General Policies and Standards	Discusses the modification process, the permitting process, as well as overviews of right-of-way management, survey monumentation, and a note about historic districts.
Chapter 3: Geometric Design	Provides technical requirements for curves, intersections, and cul-de-sacs. Safety items such as sight distance, roadside clearance and traffic calming are also discussed. Private improvements such as driveways, alleys, and private streets follow public improvement design standards. There is also a section on Fire Department Standards.
Chapter 4: Multimodal Design	Includes guidance on how practitioners should include all modes of transportation when designing new or expanded roadways. This includes shared use paths, bicycle facilities, sidewalks, transit, and freight.
Chapter 5: Traffic Engineering	Provides design requirements for speeds, stop signs, traffic signals, signage, pavement markings and any special standards.
Chapter 6: Pavement Design	Includes technical requirements for thickness of pavement.
Chapter 7: Stormwater	References the Stormwater and Grading Design Standards and reminds users that stormwater management must be incorporated into street design.
Chapter 8: Utilities	Provides users technical guidance on how to address electric, gas, telephone, cable, telecom, and fiber networks within the right-of-way and associated easements.
Chapter 9: Street Lighting	Provides design standards for decorative street light fixtures and poles as well as the use of PGE related designs and associated electrical equipment.
Chapter 10: Landscape Design	Describes the furniture zone and reminds designers how to design the right-of-way for stormwater management, pedestrian use, and an urban landscape.
Appendices	Provides references, forms, and checklists that can be used during the design process.

1.3 ROLES

The City's policy requires compliance with Oregon Revised Statute (ORS) 672 for professional engineers.

All engineering plans, reports, or documents shall be prepared by a registered professional engineer or a subordinate employee under the engineer's direction and shall be signed by the engineer and stamped with the engineer's seal to indicate the engineer's responsibility for them. For design and construction projects, a private development or City contracted Engineer of Record is responsible for preparing project documentation and plans based on City standards. The City Project Engineer or City Project Manager is responsible for reviewing any proposed public facility addition, extension, modification, or other type of project within the city to determine if the proposal is permissible, if it meets City standards, and if there are any special requirements before or during engineering or other proposed design work.

City comments or approval of the plans and any related documents for any job does not in any way relieve the Engineer of Record of their responsibility to meet all City requirements or obligation to protect the life, health, and property of the public. The plan for any project shall be revised or supplemented at any time it is determined that the City's full requirements have not been met.

Specific titles and roles of those involved in preparing, reviewing, and approving plans and design decisions for City projects are described below.

A. Development Personnel

1. Applicant: Property owner or person designated by the property owner to be the representative for an application for a development proposal, permit, or approval. May be referred to as "owner" or "developer."
2. Engineer of Record/Inspecting Engineer: A professional engineer with civil engineering expertise holding a valid license from the State of Oregon that is responsible for stamping plans and documents prepared for a project and/or primary inspection of construction for a project. This person is part of a consulting engineering company working for either the Applicant or the City.

B. City Personnel

1. City Engineer: Oversees the Engineering Group and provides final direction and approval for City projects. May designate a subordinate to make decisions required of the City Engineer.
2. Engineering Group: A group led by the City Engineer that provides professional engineering services to various City departments and the general public; includes the following groups:
    a. *Engineering Services:* Manages capital projects and right-of-way management; provides erosion control inspection.
    b. *Development Services:* Manages public and private development.
    c. *Construction and Right-of-Way Management:* Provides inspection services for permits and provides permitting and oversight to the right-of-way.
3. Community Development Department: A group led by the Community Development Director that consists of Planning and Building.

a. *Planning*: Staff members who provide planning, zoning, and land use services for the City.

b. *Building*: Staff members who provide building permit and building inspection services for the City.

4. **Project Engineer/Project Manager**: The staff person who manages a City project or provides oversight and permitting to a private development project.

5. **City Inspector:** Provides secondary oversight and inspection to private development.

1.4 RELEVANT RESOURCES

The *Standards* are supported by and may be used in conjunction with other associated City, Clackamas County (County), Oregon Department of Transportation (ODOT), and national street design resources and publications. Where the *Standards* contained in this document do not address a particular situation, the standards contained in these other associated resources shall apply. The primary City, County, State, and national resources are below. Additional resources are in Appendix A.

City resources include:

A. Oregon City Municipal Code (OCMC)

B. Oregon City Concept Plans

1. Thimble Creek (Beavercreek Road) Concept Plan
2. Park Place Concept Plan
3. South End Concept Plan

C. Oregon City Corridor Plans and Studies

D. Oregon City Standard Drawings (Street Standard Drawings 500 Series)

NOTE: Standard Drawings will be noted as "Std. Dwg. OC###" throughout the *Standards.*

E. Oregon City Existing Design Standards and Manuals:

1. Transportation System Plan (TSP)
2. Sanitary Sewer Design Standards
3. Stormwater and Grading Design Standards
4. Water Distribution System Design Standards
5. Sewage Pump Station and Force Main Design Standards
6. Pavement Cut Standards
7. Erosion Prevention and Sediment Control Planning and Design Manual
8. Trails Master Plan

9. City Transportation Demand Management Plan 2017, Final Report

The *Standards* presented in this document provide technical criteria to support the Oregon City Concept Plans, Corridor Plans, and Studies. The *Standards* do not intend to change the vision and goals presented in existing plans and studies. The *Standards* take precedence over technical criteria presented in other City plans and studies, if conflicts exist. The City Engineer will provide final direction if there are interpretation questions or if there are any conflicts between documents. Projects should also review and consider the information provided in specific Oregon City Concept Plans. City plans and studies may introduce the need for additional design flexibility on projects to meet the vision and goals for the community. In these cases, the City's design modification process presented in Chapter 2, Section 2.1 can support the decision-making process and documentation.

County, State, and national resources include:

A. *Clackamas County Roadway Standards*

B. ODOT *Blueprint for Urban Design*

C. ODOT *Highway Design Manual*

D. ODOT *Traffic Signal Guidelines*

E. American Association of State Highway Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets* (AASHTO *Green Book*)

F. AASHTO *Roadside Design Guide*

G. Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD) for Streets and Highways with Oregon Supplement

H. Oregon Standard Specifications for Construction and Standard Drawings

I. Chapter 333 Oregon Administrative Rules

J. Oregon Fire Code

K. Oregon Certification Office for Business Inclusion and Diversity (COBID)

L. Oregon Metro Designing Livable Streets and Trails

M. Oregon Highway Plan

N. ODOT *Speed Zone Manual*

O. FHWA Intersection Control Evaluations

1.5 PERFORMANCE-BASED AND CONTEXT-BASED DESIGN

Integrating a performance-based and context-based design approach into project decision-making can verify that each City project meets the City Commission's goals and vision. Performance-based design establishes project goals early in the project and verifies that project decisions throughout the project's various stages align with the original goals.

Goals may address:

A. The vision of the community, including existing characteristics and desired future lane-use patterns and growth.

B. The role and function of the street within the network.

C. The users of the street based on the surrounding land uses, future vision, and role of the street.

Project performance metrics are identified to evaluate alternatives based on the project goals. For each project, performance measures should be tailored to evaluate an alternative's ability to respond to the specific needs of the users and should relate directly to the project's documented goals. For example, a community may want to implement bicycle lanes on an arterial while minimally impacting traffic mobility. Bicycle level of traffic stress (LTS) or multimodal level of service (MMLOS) could be used to measure impacts to bicyclists, while the traditional vehicle volume-to-capacity (v/c) ratio could still be considered for traffic mobility.

The ODOT *Blueprint for Urban Design* provides additional guidance on how to identify project goals and performance metrics and how to implement a performance-based design approach. National activities and associated publications, such as FHWA's Performance-Based Practical Design initiatives and *NCHRP Report 785: Performance-Based Analysis of Geometric Design of Highways and Streets* (NCHRP Report 785), have resulted in a framework for executing this project approach. As presented in the AASHTO *Green Book,* this approach shapes how designers deliver projects in a variety of contexts and project stages. In addition, the ODOT *Blueprint for Urban Design* supports this approach and details how it may apply to a variety of projects.

The following section provides an overview of this approach, consistent with FHWA and ODOT roadway design approaches.

1.5.1 Performance-Based Design

Performance-based design is a decision-making approach for guiding and documenting planning and design decisions. This approach:

A. Emphasizes the outcomes of planning and design decisions as the primary measure for design effectiveness and project success.

B. Guides practitioners to clearly outline intended project outcomes and select performance measures that align with those outcomes.

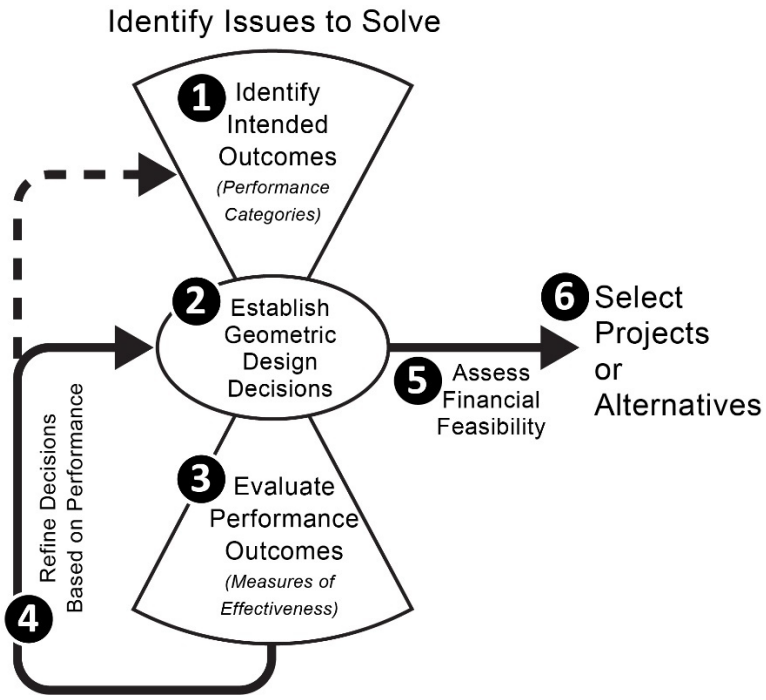
C. Creates a method for documenting planning and design choices to allow agencies to make informed design decisions.

D. Supports risk management and tort liability by providing a decision-making framework for documenting planning and design decisions and solutions.

The performance-based design approach includes frameworks that can help project teams evaluate the trade-offs of various design decisions. Making decisions based on the context and roadway users can help verify that project outcomes align with the current and/or future land use vision.

Figure 1-1 provides an overview of the performance-based approach from NCHRP Report 785.

Figure 1-1: Performance-Based Design Approach



This performance-based approach considers:

1. Identifying desired project outcomes and performance metrics.
2. Establishing design decisions based on the desired outcomes.
3. Evaluating the performance of the design.
4. Iterating and refining the design to align solutions with desired outcomes.
5. Assessing the financial feasibility of the alternatives.
6. Selecting a preferred alternative that aligns with the desired outcomes.
7. Potentially reassessing desired outcomes if no acceptable solution is identified.

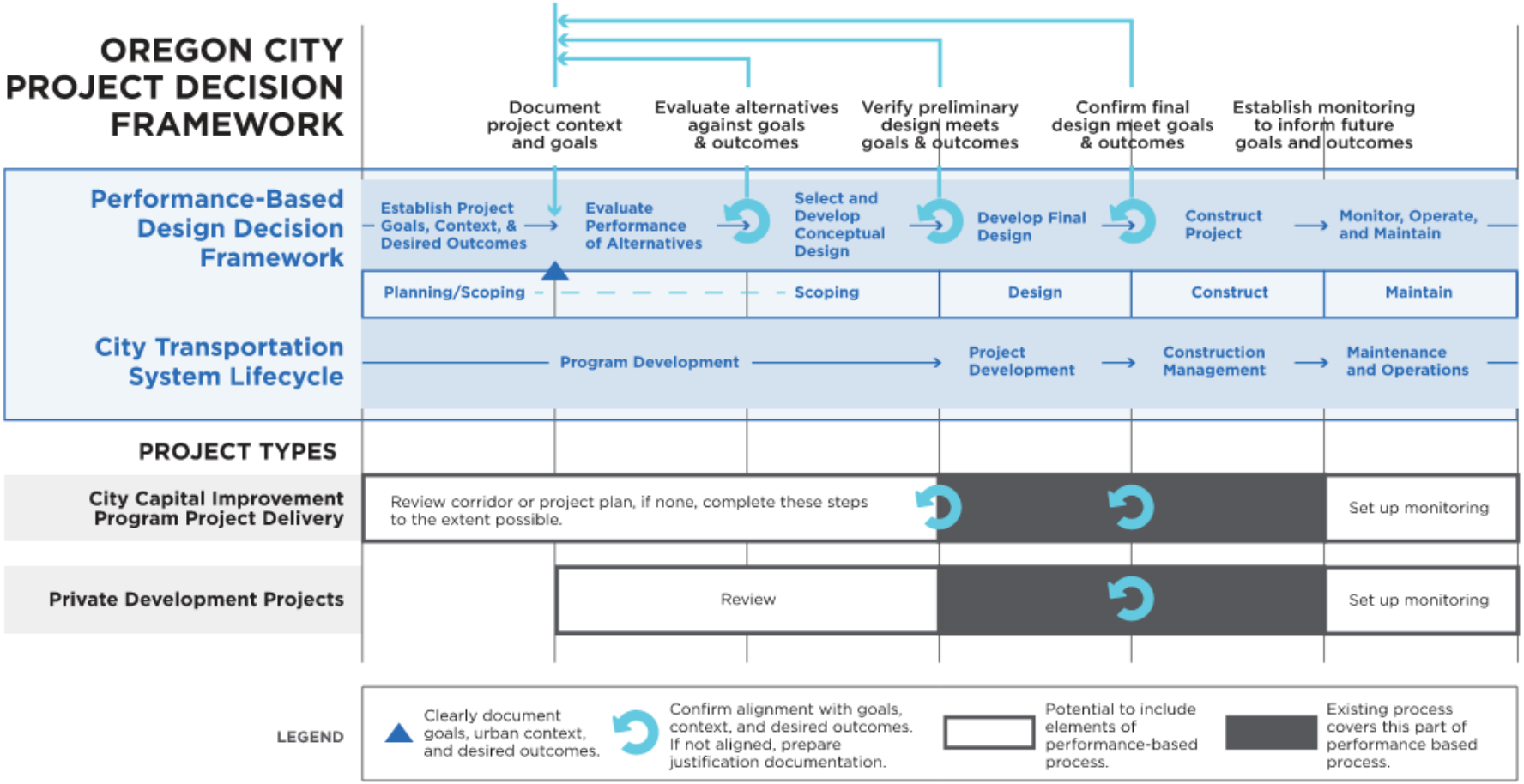
The performance-based framework is founded on three basic steps:

1. **Project Initialization:** Understand context classification (Section 1.3.2 and Section 1.3.3) and project context considerations to help establish intended project outcomes.
2. **Concept Development:** Generate specific alternatives best suited for the identified project needs and outcomes.
3. **Evaluation and Selection:** Use project-specific performance metrics to assess, refine, and advance the alternative.

Figure 1-2 provides a decision-making framework to guide practitioners through an iterative process that allows for flexibility in the design, continuous verification of desired project outcomes, and documentation of design decisions throughout each stage of the process.

The blue circular arrow symbols highlight milestones where the project goals and desired project outcomes should be revisited to verify that the planning and design decisions, alternatives development, and designs align with the original intent of the project and serve user needs. These are also milestones that require documenting planning and design decisions. If design decisions, project team discussions, and alternative evaluations have led to any changes in the performance measures or project goals, this information and the project team decisions should be clearly documented.

Figure 1-2: City Project Decision-Making Framework



1.5.2 City Functional Classifications and Street Types

Oregon City classifies the street system into a hierarchy organized by street function and type. These classifications ensure that streets reflect the neighborhoods through which they pass and consist of a scale and design appropriate to the character of abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes, including pedestrians, bicyclists, transit riders, motor vehicles, and freight. The City's multimodal street system is detailed in the Oregon City TSP.

The functional classifications include:

A. Major arterial

B. Minor arterial

C. Collector

D. Local street

The street types include:

A. Commercial

B. Industrial

C. Residential

D. Mixed-use

1.5.3 Oregon Statewide Context-Based Design

In addition to the functional classifications and street types identified by the City, ODOT has established statewide urban context classifications. Project teams should consider how the City project may fit within the surrounding context established by the state, particularly if state facilities are adjacent to or are intersecting with the City streets within the project.

The ODOT *Blueprint for Urban Design* has identified six urban context classifications, including:

A. **Traditional Downtown/Central Business District (CBD):** Areas with the highest development and building heights in an urban area. Typically, a few square blocks. Buildings have mixed land uses, are built up to the roadway, and are within a well-connected roadway network.

B. **Urban Mix:** Mix of land uses within a well-connected roadway network. May extend long distances. Commercial uses front the street, with residential neighborhoods on top or immediately behind land uses.

C. **Commercial Corridor:** Mostly commercial and industrial uses with large building footprints and large parking lots set within large blocks and a disconnected or sparse roadway network.

D. **Residential Corridor:** Mostly residential uses within a well-connected or somewhat-connected roadway network. May extend long distances. Single-family homes may have direct access to the state roadway.

E. **Suburban Fringe:** Sparsely developed lands, typically at the edge of an urban growth boundary. May be large-lot residential, small-scale farms, or have intermittent commercial or industrial uses.

F. **Rural Community:** Small concentrations of developed areas immediately surrounded by rural, undeveloped areas.

The ODOT *Blueprint for Urban Design* (Chapters 2 and 3) provides additional information about designing roadways within each of the contexts that may help support City decisions for projects within these areas. Projects that integrate context considerations can help project teams:

A. Understand the effects of existing and future land uses.

B. Efficiently serve existing and emerging communities and the various users traveling along and crossing the streets.

C. Provide better tools for streets transitioning between communities.

As projects consider design decisions to align with the project-specific needs, the statewide concepts for context classification should be used to evaluate tradeoffs and inform decision-making. Any decisions that result in designs outside of the City *Standards* need to be processed through a City Design Modification Process for Capital Improvement Program Projects or a Public Improvement Modification Process for Private Development Projects. Additional information on modifications is described in Section 2.1.

1.6 EQUITABLE DEVELOPMENT OF CLIMATE FRIENDLY NEIGHBORHOODS

In alignment with the City Commission goals, the City supports equitable development of climate friendly neighborhoods. Greenhouse gas emissions from motor vehicles and serious traffic crashes are two of the most pressing transportation issues; addressing these issues will require a transportation system designed to serve multiple modes of travel, including walking, bicycling, and accessing public transit. To enhance community livability, streets must function not only as corridors for moving people, goods, and services but as community gathering spots, public spaces, and stormwater management facilities. Street design determines how safe, sustainable, resilient, multimodal, and economically beneficial streets are. All projects should consider how to effectively integrate design features that align with community values.

In addition, the City is supportive of contracts, including those from minority-owned, women-owned, service-disabled veteran-owned businesses as well as emerging small businesses. Certified businesses using the Certification Office for Business Inclusion and Diversity (COBID) are encouraged.

1.7 GREEN STREETS

To limit how much stormwater and pollutants eventually make their way into vulnerable natural waterways, all streets must manage stormwater, treat runoff to reduce pollution, and infiltrate water into the ground. The City encourages projects to incorporate green infrastructure treatments, such as vegetated medians, planters, curb extensions, and street trees. This allows streets to not only manage stormwater but to mitigate the harmful impacts of transportation on air, water, and wildlife habitat and connectivity. This street function supports human and environmental health. Oregon Metro's *Designing Livable Streets and Trails Guide* provides additional information on green streets.

2.0 GENERAL POLICIES AND STANDARDS

Chapter 2 provides an overview of City general policies and standards. Specific information regarding design modification documentation is included to support decision-making.

2.1 DESIGN DECISIONS AND MODIFICATIONS

A performance-based design approach will help the design team consider the project context and the intended project outcomes when establishing the design controls and associated design criteria on a project-by-project basis. The design team for each project within the City is responsible for making every reasonable effort to meet these *Standards*. However, this will not always be practical or appropriate. These *Standards* are not meant to limit creative engineering efforts to provide alternate solutions to specific constrained areas or to relieve the responsibility for professional engineering judgment. When standards are not met, designers can document their design decisions through design modifications. Practical design modifications that preserve the function and safety of the street system and offer benefits to aesthetics, resource protection, ease of maintenance, and livability are encouraged.

Types of modifications are described below.

A. The City's design modification processes should be used for capital improvement projects and represent a means for the design team to identify, justify, and implement design features that do not fall within the designated design standards established by the City.

B. Private development projects should use the Public Improvement Modification process outlined in OCMC 16.12.013.

C. The Americans with Disabilities Act (ADA) Modification Process follows the procedures detailed in Section 2.3.1.

When the City is providing maintenance to existing infrastructure and seeking to complete maintenance in a way that is contrary to the typical standards, it should follow the City Design Modification Process.

2.1.1 Design Modification Process for Capital Improvement Projects

If a capital improvement project cannot meet these *Standards* or those outlined in OCMC, a design modification is required to propose improvements less than or in contrast with the requirements. Requests to modify design standards shall use the City Design Modification form in Appendix B.

2.1.1.1 Criteria for Design Modifications to Standards

The City may grant a modification when doing so does not compromise public safety or the intent of the City's *Standards* if any one of the following conditions are met:

A. The subject standard is deemed not applicable.

B. Topographic, right-of-way, overlay districts (e.g., natural resource overlay district, historic, Willamette Greenway, and geologic hazards), or other geographic conditions impose an environmental concern or constrain constructability and an equivalent alternative that can accomplish the same design intent is available.

C. A minor change to the standard is required to address a specific design or construction constraint that, if not enacted, will result in an undue hardship.

D. The proposed modification does not compromise safety, function, appearance, and maintainability based on sound engineering and technical judgment.

E. The modification does not conflict with land use requirements.

2.1.1.2 Review for Design Modifications to Standards

Design modifications are typically submitted before land use application approval or early in the design process when related to capital improvement projects.

A. Modifications include but are not limited to:

    1. Geometric design and the modification or omission of standard roadway cross section elements
    2. Sight distance
    3. Access spacing
    4. Number of accesses
    5. Intersection angle

B. The City Engineer will review a request to modify design standards and will make one of the following decisions:

    1. Approve as proposed
    2. Approve with changes
    3. Deny with an explanation

C. Design modification approval does not constitute a precedent for use at other locations.

2.1.2 Public Improvement Modification Process for Private Development

If a private development cannot meet these *Standards* or those outlined in OCMC, a public improvement modification is required to propose improvements less than or in contrast with the requirements. Often, this modification is requested to reduce the required right-of-way dedication, reduce the size of the pavement required, eliminate a street parking requirement, or address other requirements outlined in the OCMC 16.12.016.

Land use conditions of approval are commonly written so that there is little flexibility after land use approval, so it is imperative to address design modification requests before land use approval. If a design modification is requested after the land use conditions of approval are issued, an additional application for a modification of the conditions of approval or a new land use application through the Planning and Zoning Division may be required.

2.1.2.1 Criteria for Public Improvement Modifications to Standards

The OCMC 16.12.013 outlines five criteria that shall be met for the City to support a change to the OCMC or these *Standards*:

A. The modification meets the intent of the *Standard*.

B. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists, and freight.

C. The modification is consistent with an adopted transportation and/or utility master plan.

D. The modification is complementary to a surrounding street design.

E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the State or Federal constitution. The City is under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

2.1.2.2 Review for Public Improvement Modifications to Standards

A. A Public Improvement Modification is processed as a Type I or Type II Land Use Decision.

   1. Type I, including driveways and sidewalks, is processed through Public Works.

   2. Type II is processed through the Planning Division using the Land Use Application Form.

B. If a property seeks a modification to the requirements on driveways found in OCMC 16.12.035 (the number of driveways, width of driveways, or spacing of driveways), the modification is processed through a Type I Decision through the Engineering Group using the Public Improvement Modification Application (see Appendix B).

C. In either case, the five criteria in OCMC 16.12.013 shall be met, or the modification request will be denied. An appeal of denial is allowed per OCMC 17.50.190.

2.1.3 Americans with Disability Act (ADA) Modifications

All project designs shall comply with Title III of the Americans with Disabilities Act (ADA) of 1990 and the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG). The City uses the PROWAG standards for ADA accessibility within the public rights-of-way and easements under the City's jurisdiction. PROWAG justifies modifications to the standards for new construction and alterations to existing ADA accessibility features. Modifications are required for any accessibility feature that cannot meet the requirements due to a physical constraint identified in the following sections. Crosswalk closures are also reviewed under the ADA modifications process.

2.1.3.1 Modifications for New ADA Accessibility Features

Modifications to full compliance with PROWAG standards can only be granted for a limited number of physical constraints preventing full compliance. If a modification is required for a particular feature, efforts shall be made to ensure that other elements are accessible. Modifications for non-compliance PROWAG standards for new ADA

accessibility features can only be approved when full compliance cannot be achieved due to terrain or historic features. Where the Historic Review Board determines that compliance with a requirement would threaten or destroy historically significant features of a qualified historic facility, compliance is required to the extent that it does not threaten or destroy the facility's historically significant features (PROWAG R202.3.4).

2.1.3.2 Modifications for Alterations to Existing ADA Accessibility Features

Where existing physical constraints make it impracticable for altered facilities to fully comply with ADA requirements, compliance may not be required within the scope of the project. Existing physical constraints include but are not limited to underlying terrain, right-of-way availability, underground structures, adjacent developed facilities, drainage, or the presence of a notable natural or historic feature (PROWAG R202.3.1).

2.1.3.3 ADA Modification Request Submittal

Modification requests must be submitted using the ADA Modification Request form (see Appendix B) at the following points in the process:

A. Requests for modifications to waive the requirement for a new ADA accessibility feature as part of a private development should be submitted and acted upon before land use approval since land use conditions are typically written with little or no flexibility.

B. Requests for modifications to requirements for a particular element should be submitted during the first plan review and shall be acted upon before permit issuance.

C. Requests for modification to requirements may be submitted during construction if physical constraints that were not included in the design are identified. In such situations, the Engineer of Record or City Project Manager shall prepare a revised design that maintains accessibility to the greatest extent practicable, and that modification shall be acted upon before constructing the accessibility feature.

D. Modifications should not be provided for non-compliant features after construction.

The City Engineer will review all modification requests and approve or deny the requested modification.

2.2 PERMITTING/APPROVAL PROCESS

2.2.1 Private Development

The contract plans developed for the project act as the permit documentation required. For additional details and requirements on private development, refer to the OCMC 17.50.

Permits for private development are valid for three (3) months. If construction has not begun on site improvements or public improvements within three (3) months of approval, plans and documents are subject to additional review and revisions to meet any standards that have been updated since the time of plan approval. Installation of erosion and sediment control or early grading do not constitute the beginning of construction.

Approval of plans does not constitute a prefect adherence to these standards. Approval constitutes the City's best review of the plans at the time. While revisions are expected to be kept to a minimum, the City may require additional revisions during construction if standards are found to not be adhered to onsite or in the permitted plans.

2.2.2 Capital Improvement Projects

City capital project permitting and bond requirements are contained in the contract documents for each project.

2.3 CONSTRUCTION INSPECTION

2.3.1 Private Development

The Applicant shall provide the City with access to the facility for inspection of the work in accordance with the requirements and intent of the plans, specifications, permit conditions, and land use requirements (collectively known as "the permit"). Refer to the OCMC and Private Development Minimum Inspection Requirements for additional information and the checklist form on the City's website (shown in Appendix C).

2.3.2 Capital Improvement Projects

City capital project inspection requirements are contained in the contract documents for each project.

2.3.3 General Requirements

A. The City's Construction Inspector shall be present at all public improvement inspections as noted on the Private Development Minimum Inspection Requirements.

B. The City's inspection services do not relieve the Engineer of Record or Contractor of their responsibility to properly comply with these *Standards*.

C. City inspection services do not constitute approval of any modification to the approved construction plans.

2.3.3.1 City Responsibilities

Inspection services provided by the City Construction Inspector include:

A. Acting as a liaison between the designated Engineer of Record and the City.

B. Monitoring both work progress and performance testing results.

C. Performing administrative and coordination activities as required for supporting the processing and completion of the project.

D. Issuing a Stop-Work Order by notice to the designated Engineer of Record, Contractor, and Applicant, if required.

2.3.3.2 Applicant Responsibilities

Refer to the Oregon City Minimum Guidelines for Inspection/Observation and Construction of Public Improvements. Inspection services provided by the Applicant include:

A. Obtaining and using a copy of City-approved construction plans and specifications (the permit) and a copy of these *Standards*.

B. Reviewing and approving all pipe, pavement, concrete, and other materials to ensure compliance with City *Standards*.

C. Approving all plan or specification changes in writing and obtaining City approval (see City Inspection Services above). The City must re-approve all changes to the approved plans or specifications before commencing work affected by the revision.

D. Monitoring construction activities to ensure work meets City specifications.

E. Performing (or having performed) material, composition, and other tests required to ensure City specifications are met.

F. Providing inspection reports to the City at the end of each week.

G. Certifying that all necessary public improvements have been installed and accepted in compliance with the City-approved permit construction plans. This certification should take place before requesting building occupancy on commercial, multi-family, and/or other projects with concurrent site development and building permits or before platting of subdivisions or partitions. This certification must also indicate that all items required through the land use process—including but not limited to the payment of all fees, recording of all public utility easements, and obtaining maintenance bonds—have been completed at or before occupancy of the first building or recording of the plat.

2.4 ACCESS MANAGEMENT

This section includes general requirements for access management and the City's access spacing standards. Refer to OCMC 17.52.090 for loading area requirements.

2.4.1 General Requirements

Access management for private accesses or public intersections is required to improve the safety and efficiency of traffic flow for transportation network users and to balance those needs with livability, economic, and community values. Managing roadway access benefits the overall roadway system by increasing safety, reducing conflicts for all users, increasing capacity, and reducing travel times. Controlling access must not become too restrictive; however, local businesses and homeowners deserve access to the roadway system. Overall, access management must balance the needs of through traffic, localized traffic, and pedestrians and bicyclists on a particular roadway.

The location and number of roadway intersections and other access points must be planned, coordinated, and controlled by the City. By the nature of the roadway functional classification system, higher-speed arterial streets require the highest level of access management restriction and tend toward less access. Lower-speed collector streets and connector streets require less restrictive access management. Local streets require very few access management restrictions and tend toward more frequent access.

Accesses are subject to the sight distance standards outlined in Section 3.5, and non-compliant accesses may not be approved. To comply with these requirements, existing accesses may require removal or modification due to safety issues.

2.4.2 Access Spacing Standards

The Oregon City TSP identifies the minimum and maximum street intersection spacing and minimum driveway spacing standards for streets in Oregon City (shown in Table 2-1). Additional information on driveway spacing requirements is described in the OCMC 16.12.035. Per OCMC 16.12.035, the distance from a street corner to a driveway is measured along the right-of-way line from the edge of the intersection (on the same side of the road) to the nearest portion of the driveway. The distance between driveways is measured at the nearest portions of the driveways (or from edge to edge). Block spacing between streets is measured between the right-of-way centerlines.

Any changes to the spacing standards require a Type I Driveway Modification, further described in Section 2.1. Additional City plans, such as the *Beavercreek Road Access Management Plan*, provide additional information on driveways that will be closed and combined.

Table 2-1: Spacing Standards

	Mixed-Use or Residential				Commercial or Industrial			
	Major Arterial	Minor Arterial	Collector	Local	Major Arterial	Minor Arterial	Collector	Local
Maximum Block Size (Street to Street)*	530’	530’	530’	530’	530’	530’	530’	530’
Minimum Block Size (Street to Street)	150’	150’	150’	150’	150’	150’	150’	150’
Minimum Driveway Spacing (Street to Driveway and Driveway-to-Driveway)**	175’	175’	100’	25’	225’	225’	150’	25’

* Maximum except in zones General Industrial (GI), Campus Industrial (CI), Mixed Use Employment (MUE), Institutional (I), and Willamette Falls Downtown District (WFDD), where appropriate street spacing will be determined by the City Engineer. If the maximum block size is exceeded, midblock pedestrian and bicycle accessways must be provided at spacing no more than 330 feet, unless the connection is impractical due to existing development, topography, or environmental constraints. Alternatively, off-street pedestrian and bicycle accessways spaced 500 feet from a street may supplement block lengths exceeding 530 feet.

**Single-family dwellings are exempt from the driveway-to-driveway spacing standard.

When a property is zoned MUC-1, driveways for loading zones shall be separated from customer/employee access driveways when feasible. Access spacing is exempt for those properties and should be coordinated with the City Engineer (as determined by the City Engineer).

2.5 RIGHT-OF-WAY AND PUBLIC EASEMENTS

Refer to the City of Oregon City Municipal Code, which takes precedence if conflict exists within these *Standards*. Projects that do not meet the standards noted in this section and in the Code require a Design Modification (Refer to Section 2.1).

2.5.1 Requirement for Right-of-Way and Public Easements

As a condition of approval for a development, the City may require dedicating additional road right-of-way or other public easements in support of the proposed development to meet standard cross sectional elements. The City will determine the right-of-way and easement widths and types after reviewing the development with the requirements for dedications identified via land use requirements or as identified in the dedication review processes.

2.5.2 Minimum Width Requirements for Rights-of-Way and Easements

A. Definition of standard road right-of-way widths by roadway functional classification is provided in OCMC 16.12.016 for required typical sections.

B. Some corridor plans and concept plans require road designs specific to certain areas. Details specific to these can be found in the respective plans. Contact the City Engineering Group to verify details and standards for those areas.

C. If dedicating a Permanent Public Utility Easement (PUE) or a combination of another easement that includes a PUE is required, an easement must be dedicated along the entire abutting right-of-way of all front lot lines (see Section 8.3).

D. Additional easements for signing, slopes, and pedestrian facilities may be required via land use requirements or during construction plan review. This should also be considered for CIP projects.

2.5.3 Right-of-Way and Public Easement Dedication Process

Refer to OCMC 16.12.085 for details on the public rights-of-way and easement dedication processes and types of easements. Also refer to the Street and Easement Vacation Standard Operating Policy and Procedure. An overview of the process is below.

A. Typical easements that may be required for dedication may include but are not limited to:

   1. Permanent Right-of-Way Dedication
   2. Permanent Public Utility Easement (see Section 8.3)
   3. Permanent Sign, Slope, Public Utility, and Sidewalk Easement
   4. Permanent Storm Drainage, Sanitary Sewer, or Water Easement (See Section 8.3)
   5. Temporary Construction Easement
   6. Unusual Facility Easement
   7. Watercourse Easement
   8. Resource Protection Easement

B. Depending on the project's requirements, one or more of the above easement dedications may be required.

C. An Applicant may be required to provide proof of recorded access from a public road or public easement through the proposed development to an abutting parcel.

D. If proof of access easement cannot be provided or has not been previously created, then an Applicant will be required to dedicate a permanent public easement for the benefit of the abutting parcel on the face of the plat.

2.5.4 Street, Alley, and Easement Vacations

A street vacation is the termination of the public interest in a right-of-way, and it extinguishes the easement for public travel that the right-of-way represents. Whenever any street, alley, or public way is vacated by official action, the zoning districts adjoining the side of such public way shall automatically be extended to the side or sides to which such lands revert to include the right-of-way thus vacated, which shall henceforth be subject to all regulations of the extended district or districts. Refer to OCMC 17.06.035.

The following factors will be evaluated when considering whether the vacation will impact the public interest:

A. The area proposed to be vacated is not presently needed and is not identified in any adopted plan for public services, transportation functions, utility functions, stormwater functions, view corridors and/or viewpoints, tree planting/retention, pedestrian amenities, community uses, or commercial uses.

B. The vacation does not prevent the extension or retention of public services, transportation functions, utility functions, stormwater functions, view corridors and/or viewpoints.

C. Public services, transportation functions, or utilities can be extended in an orderly and efficient way in another location.

D. The vacation does not impede the future best use of, development of, or access to abutting property.

E. The area of the vacation is not presently (or will not in the future be) needed as part of an interconnected system of public streets that is generally consistent with the street connection and bicycle/pedestrian spacing requirements.

F. The vacation does not impact a Historic District.

When approving a petition to vacate a street, whether fully or in part, the City may make reservations or conditions, including:

A. The maintenance and use of underground public utilities or service facilities in the portion vacated.

B. Limits to using the area above and adjacent to underground utilities or service facilities.

C. Moving the utility or service facilities either below, on, or above the surface at the petitioner's expense.

D. Constructing, extending, or relocating sidewalks and curbs, shared-use paths, trails, or other similar pedestrian or bicycle facilities.

E. Grading or pavement extensions.

F. Dedication for street use or another area instead of the area to be vacated.

G. Replat.

H. Any other matter of like or different nature relating to the vacated area and remaining or relocated street area adjacent to the petitioner's property or area dedicated instead of the vacation area.

See Street and Easement Vacation Standard Operating Policy and Procedure for further information about policy and process of street and alley vacations.

2.5.5 Annexations

All annexations shall include the adjacent existing roadway in total. Annexations shall not stop at the centerline.

2.5.6 Obstructions

It is unlawful for any person to place or maintain any obstruction (permanent obstruction) other than a temporary obstruction in any public street or alley in the city without obtaining approval for a right-of-way permit from the City Commission by passage of a resolution.

A temporary obstruction is defined as an object placed in a public street, sidewalk, road, or alley that is not permanently anchored to another surface, such as the pavement, the sidewalk, or a building. A temporary obstruction includes but is not limited to moving containers, debris dumpsters, and seating. A short-term temporary obstruction is allowed for a period of no more than 60 consecutive calendar days and is permitted with a temporary obstruction in the right-of-way permit. A long-term temporary obstruction is allowed for no more than 1 year, and it is permitted with a renewable right-of-way permit.

To allow the City Commission to adequately consider whether to allow the placement of an obstruction and whether any conditions may be attached, the following information is required:

A. Site plan showing right-of-way, utilities, and driveways.

B. Sight distance per OCMC 10.32, Traffic Sight Obstructions.

C. Traffic control plan including parking per the MUTCD.

D. Alternative routes (if necessary).

E. Minimized obstruction area.

F. Hold harmless/maintenance agreement.

If the City Commission adopts a resolution allowing the placement of a permanent obstruction in the right-of-way, the City Engineer shall issue a right-of-way permit with any conditions deemed necessary by the City Commission. Signage that acts as an obstruction is approved through OCMC 15.28. While awnings are considered an obstruction, they may be allowed if the conditions in the Awning Standard Operating Procedure is met.

In determining whether to issue a right-of-way permit to allow a temporary obstruction, the City Engineer may issue such a permit only after finding that the following criteria have been satisfied:

A. The obstruction will not unreasonably impair the safety of people using the right-of-way and nearby residents.

B. The obstruction will not unreasonably hinder the efficiency of traffic affected by the obstruction.

C. No alternative locations are available that would not require use of the public right-of-way.

D. ADA standards are maintained.

E. Any other factor that the City Engineer deems relevant.

OCMC 12.04.120 outlines requirements for temporary and permanent obstructions.

2.6 SURVEY/MONUMENTATION

The *Oregon Standard Specifications for Construction* and ORS 209.140155 define the requirements for the protection of existing survey monuments during any construction and the setting of new survey monuments following the construction of new roadways.

Refer to the *Clackamas County Roadway Standards*, Section 150 for Survey and Monumentation standards.

2.7 HISTORIC DISTRICTS AND DOWNTOWN

Oregon City has two local historic districts:

A. McLoughlin Conservation District

B. Canemah National Register District

Additional information for each district is provided at the districts' websites. OCMC 17.40 provides information on the Historic Overlay District for the City, including construction details for projects within this area. Refer to the Historic Design Guidelines for New Construction.

Downtown Oregon City is not a Historic District, but the downtown has specific guidelines to preserve this area. According to the 1999 *City Downtown Plan*, the City intends to verify that new construction and improvements are guided by a set of historic design guidelines that enhance and preserve this part of the City. Within this area, pedestrian-oriented design features are emphasized, including:

A. Pedestrian crossings

B. Street furniture

C. Wider sidewalks

D. River viewpoints

E. Decorative railings

3.0 GEOMETRIC DESIGN

Chapter 3 provides the geometric building blocks for planning and designing a road by describing the typical cross section elements, outlining parameters associated with horizontal and vertical alignments, providing an overview of intersection design, discussing various sight distance needs, highlighting the assessment of roadside design, and providing features for traffic calming and additional design features. This chapter is consistent with the geometric design principles outlined in the AASHTO *Green Book* and the ODOT *Blueprint for Urban Design*. If the guidance in this section cannot be obtained, then a design modification is required for approval by City Engineer.

3.1 CROSS SECTION

Typical roadway cross sections vary based on functional classification. Roadway functional classifications are established in the Oregon City TSP. Table 16.12.016 from OCMC 16.12.016 implements the Oregon City TSP and illustrates the maximum design standards. These standards may be reduced with an alternative street design, which may be approved based on the modification criteria in OCMC 16.12.013. and Std. Dwgs. OC500-OC502 for required typical sections. For the Downtown District, Washington Street, 7th Street, and Molalla Avenue, refer to Section 5.8. When required as a condition of development, half-street improvements must include the entire area between the centerline and the edge of right-of-way. Table 3-1 provides general guidance and an overview on the typical uses for each cross sectional element and where to find additional information.

Table 3-1: Typical Uses for Cross Sectional Elements

Cross sectional Element	Description
Travelway	Travelway width varies by functional classification—see Std. Dwg. OC 500-OC502. The number of travel lanes is determined by the Oregon City TSP.
Two-Way Left-Turn Lane/Median	Medians are to provide for left-turn lanes (e.g., two-way left-turn [TWLT]) as needed and used only on collector and arterial streets. Medians can be narrower if there is no need for left-turns and/or refuge islands for pedestrian crossings. Medians can be raised and landscaped; rocked medians should be provided in locations that need sight distance and where pedestrian crossings are present. Section 10.0 provides information on landscaped medians. Refer to Oregon City area-specific planning documents for guidance on where medians are required. Medians (and sometimes "pork chop" islands) are also used for access management purposes and to prohibit specific movements (e.g., right-in/right-out).
Parking	On-street parking shall be parallel along the curb per OCMC 16.12.016. Angled on-street parking is discouraged and shall only be implemented on a case-by-case basis with City Engineer approval.
Bicycle Facilities	Bicycle facilities are required on all roads City streets classified as collector streets or higher. The standard bicycle lane width is 6 feet based on the OCMC. However, when possible, it is desirable on collectors and arterials to have on-street buffered bicycle lanes (6-foot bicycle lane with a 2-foot buffer). Separated bicycle facilities may be necessary in higher-speed environments to improve bicyclists' safety and comfort. The minimum bicycle facility requirement is on-street buffered bicycle lanes, but the preferred solution is to provide separated bicycle facilities. Alternative applications may include raised bicycle facilities or shared-use paths. For guidance, refer to Oregon City area-specific planning documents, such as the Oregon City TSP, which outlines future bicycle route connectivity throughout the City.
Curb and Gutter	The Std. Dwg. OC511 requires a 6" curb with an 18" gutter.
Landscaping	When required, landscaping can be installed on medians or between the curb and sidewalk. See Std. Dwg. OC530 for street tree planting details and OCMC 12.08 for street tree requirements. Refer to Chapter 10 for additional landscaping details.
Sidewalks	Typical sidewalk widths shall be per OCMC 16.12.016, Oregon City concept plans or other adopted plans.

3.1.1 Lane Widths

The Oregon City TSP provides guidance on how to determine lane widths based on functional classification. The City has four key considerations when deciding lane widths:

A. Lane widths should be kept as narrow as possible.

B. Wider lane widths should be considered when the mix of heavy vehicles is greater.

C. When no bicycle facility or shoulder is present, a shy distance from a vertical curb should be considered.

D. If the purpose of the design is a lower-speed environment, narrower travel lanes should be selected.

Oregon City TSP provides additional information on determining the lane arrangement and width of the street based on functional classification and potential route designations, such as freight and transit routes, as summarized below.

A. Streets along regional and local truck routes should have a minimum lane width of 12 feet.

B. A minimum lane width of 11 feet is required along a transit route.

C. If the street is not along a designated route, the lane width can be reduced to a minimum of 12 feet along major arterials, 11 feet on minor arterials, and 10 feet along collectors and local streets, as determined by the City.

3.1.2 Constrained Street Section

Allowable applications and reduced cross section widths may be considered for local streets only if determined by the City Engineer. The following potential scenarios will be evaluated on a case-by-case basis:

A. Constructing the standard street width would cause excessive impacts to adjacent businesses and/or homes.

B. Constructing the standard street width is impractical based on topographical impacts (i.e., retaining walls or cut/fill would be required).

C. Constructing the standard street width would unnecessarily impact environmentally sensitive areas.

For all cases, the City Engineer shall approve documentation through the design modification and public improvement modification process.

The AASHTO *Green Book* provides guidance for vertical and horizontal roadway elements. For constrained areas, the Engineer of Record and/or the City Project Manager should follow the principles from the *Green Book* and consider various dimensions for roadway cross sections to minimize impacts.

In addition, the practitioner should assess the *Oregon Fire Code Applications Guide*, Clackamas Fire District #1 to determine if sufficient width (i.e., 20 feet of unobstructed driving surface) exists to accommodate parked vehicles. Parking should be prohibited accordingly. A design modification from the typical standard widths require approval by the City Engineer.

3.1.3 Parking (On-Street)

On-street parking may be added in urban environments if approved or required by the City. The City standard is parallel parking in public right-of-way along the curb, and it requires the least paved width. Angled on-street parking may only be considered if there is adequate street width; speeds are below 25 mph; and other constraints, such as environmental, topographical, or other unique circumstances exist. Angled parking should be processed as a design modification to be approved by the City Engineer. The location of bicycle lanes should be carefully considered in areas with on-street parking. Separated bicycle facilities or shared-use travel lanes may be considered as discussed in Section 4.2.

On-street parking is required on both sides of the street in all street designations as outlined in OCMC 16.12.016. On-street parking may be restricted for safety and/or functionality. When determining the locations of on-street parking, designers should consider sight distance, delivery access, and emergency access for existing and proposed development along the street. Where on-street parking is provided, curb extensions should be provided at intersections and midblock crossings to minimize crossing distance.

To preserve safe sight distance, on-street parking is prohibited within 15 feet of the intersection and the accessway with public streets (OCMC 16.12.032).

3.2 HORIZONTAL ALIGNMENT

All roadway designs shall comply with the guidance in the current edition of the AASHTO *Green Book*, except as modified by this section. Centerline alignment of improvements should be parallel to the centerline of right-of-way.

3.2.1 Horizontal Curves

Requirements for horizontal curves include:

A. Horizontal curves should meet the minimum radius requirements in Table 3-2.

B. Reversing horizontal curves should be separated by at least 50 feet of tangent (100 feet on arterials).

C. Horizontal curves should be designed using a maximum superelevation rate of 4% (emax=4%). See Section 3.3.2 for superelevation standards.

Table 3-2: Minimum Curve Radii

Design Speed (mph)	Minimum Curve Radius (ft) for Various Cross Slopes			
	(e) -2.5%	(e) 0%*	(e) 2.5%*	(e) 4%*
15	50	45	45	40
20	100	90	85	80
25	185	165	150	145
30	305	275	245	230
35	475	415	370	345
40	700	600	525	490
45	980	830	720	665

*Use of superelevation requires City approval.

3.2.2 Exceptions for Very Low-Volume (≤400 ADT) Local Streets with a Speed of 25 Miles Per Hour (mph) or less

The following are allowed under the listed circumstances on a limited basis:

A. Horizontal curves on local roadways within residential areas may have a minimum centerline radius of 100 feet, as limited in this section.

B. A single 15 mph maneuver is allowed on a local road on a limited basis when physical constraints or property boundary limitations exist.

C. Residential driveways that serve no more than three lots, are less than 400 feet in length, or have topographic constraints may use a 50-foot centerline radius for a 12-foot width or a 40-foot centerline radius for a 20-foot width. Approval from the City Engineer and emergency services provider are required.

3.2.3 Roadway and Marking Transitions

Shifts in roadway alignment, widening, or narrowing within motor vehicle travel lanes are to be accomplished through roadway transitions as described below.

A. Roadway transitions within through lanes:

$$L = S \times W \qquad (S \geq 45 \text{ mph})$$
$$L = WS^2/60 \qquad (S < 45 \text{ mph})$$

where L = minimum taper length (feet)
S = design speed (mph)
W = offset (shift) width (feet)

B. Tapered widening for right-turn lanes at intersections should be designed according to the ODOT *Highway Design Manual* detail for "Right Turn Channelization."

C. Tapered widening for left-turn lanes at intersections should be designed according to the ODOT *Highway Design Manual* for "Left-Turn Channelization."

D. For road widening to develop left-turn lanes, horizontal curves and tangents for the through lane may be substituted for the straight tapered widening noted above, provided that the curves and tangents meet horizontal alignment requirements for the given design speed of the roadway.

E. Along local and connector roads, roadway width transitions are not required if traffic is not expected to use the shifting roadway (e.g., at the beginning or end of street frontage improvements).

3.3 VERTICAL ALIGNMENT

The vertical alignment of the City's public and private roadways should conform to the following requirements:

A. **Minimum Roadway Gradient:** The minimum tangent roadway gradient should be 0.5% along the crown and vertical curb line. The gradient along the curb return at the sidewalk ramp landing shall be designed to 0.5–1.5%.

B. **Maximum Roadway Gradient:** The maximum roadway gradient is based on the adjacent land use contexts and should be 8% for commercial areas and 15% for residential areas.

C. **Intersection Landing:** At intersections, a landing should be provided on the secondary or subordinate approach or on a stop-controlled approach.

1. Landings should be 20 feet in length for private driveways, 50 feet in length for local roadways, and 100 feet in length for all other roadways.
2. Landings should be measured from the edge of pavement of the intersected roadway at full development and shall have an average grade no greater than 5%.
3. Cross slopes of the landings of both roadways should be flattened so that the pedestrian crossing is ADA compliant.

3.3.1 Vertical Curves

A. Vertical curves should be used when design grade breaks of more than 1% are necessary. Grade breaks may be allowable on the side street and would need to be approved by the City Engineer, depending on a lower road hierarchy.

B. The minimum vertical curve length should be 50 feet for the mainline street and 20 feet for the side street approach.

C. Vertical curves shall conform to the values in Table 3-3 and be calculated according to the formulas below. K-Sag values may be reduced to K-Crest values if adequate street lighting is present along the entire sag vertical curve.

$$K = L / A$$

where A = algebraic difference in grades (percent)

L = length of vertical curve (feet)

Table 3-3: Design Control for Crest and Sag Vertical Curves

Design Speed (mph)	Minimum Rate of Vertical Curvature (K)	
	Crest	Sag*
15	3	10
20	7	17
25	12	26
30	19	37
35	29	49
40	44	64
45	61	79

*Values are for roadways where street lighting is not present. The City may accept a lower K value for sag vertical curves if the roadway design includes lighting. The Engineer of Record shall calculate for the minimum-length curve based on comfort ($L=AV^2/46.5$).

3.3.2 Cross Slope and Superelevation

A. Roadway cross slope should be no less than 2.5% and no greater than 4%. If existing conditions require different cross slopes, approval by the City Engineer is required. Intersection grading requirements are shown in Section 3.4.1.5.

B. Design elements for superelevation should be based on the AASHTO *Green Book*.

C. Superelevation is not allowed on roadways with a design speed of 35 mph or less.

D. The maximum rate of roadway superelevation for urban conditions should be 4% ($e_{max} = 0.04$).

E. The use of superelevation in the urban area is discouraged, and the City shall approve its use.

F. Street grades, intersections, and superelevation transitions should be designed to prevent concentrations of stormwater from flowing across the travel lanes.

G. On portland concrete cement (PCC) roadways with an odd number of lanes, the crown should be offset to a lane line to prevent locating a joint in the middle of a traffic lane.

3.4 INTERSECTIONS

The City uses various intersection control types based on the context and projected traffic volumes of the intersecting roadways.

Table 3-4 describes typical intersection control types. See Section 5.3 for additional guidance on analyzing and selecting the appropriate intersection control.

Table 3-4: Typical Intersection Control Types

Traffic Control/Intersection Form	Definitions
Two-Way Stop-Control (TWSC)	At TWSC intersections, the stop-controlled approaches are on the minor street, and the free-flowing approaches are on the major street. At TWSC intersections, drivers must find gaps in the major street traffic to make a turning or through movement. See the Oregon City Public Works *Stop Sign Brochure* for more information.
All-Way Stop-Control (AWSC)	AWSC intersections require every vehicle to stop at the intersection before making a turning or through movement. If other vehicles are present at the intersection, a driver may only proceed after determining that there are no other vehicles in the intersection and that it is their turn. See the Oregon City Public Works Stop Sign Brochure for more information.
Yield	A yield-controlled intersection requires vehicles to slow down and give way to all other traffic going through the intersection. If no other traffic is present at the intersection, a driver may slow down but not stop before entering the intersection.
Traffic signal	Traffic signals are electrically operated traffic control devices that indicate to roadway users when they may advance through the intersection. Traffic signals allow the shared use of road space by separating conflicting movements.
Roundabout	A roundabout is a generally circular intersection form that uses yield-controlled approaches for all legs of the intersection. Drivers must slow down prior to entering the roundabout and give way to vehicles that are in the roundabout.

3.4.1 Intersection Geometry

Intersection geometry outlines design guidance for the following elements:

A. Design vehicle

B. Tangent approach

C. Curb radii

D. Intersection angle

E. Vertical geometry

F. Sidewalk ramps

G. Turn lanes

H. Pedestrian refuge islands

I. Roundabouts

3.4.1.1 Design Vehicle

The Engineer of Record and/or City Project Manager shall determine the appropriate design and control vehicles for a facility. Definitions and information for both vehicles are provided below.

A. **Design vehicle:** Frequently uses a facility and must be designed without encroaching into adjacent and opposing traffic lanes (e.g., turning lane to lane).

B. **Control vehicle:** Infrequently uses a facility, but encroachment into opposing traffic lanes, multiple-point turns, or minor encroachment into the roadside is acceptable (e.g., using available pavement).

C. The project may be required to provide evidence that the designs can accommodate both the design vehicle and the control vehicle.

D. Functional classification, safety, and roadway use all play a role in determining the acceptability of lane encroachment by control vehicles. For example, on a local road, full lane encroachment by a control vehicle may be acceptable if sight distance is adequate. However, on a major arterial, such encroachment may not be permitted.

E. In urban and constrained contexts, coordinate with the City Engineer to determine how trucks will be accommodated and/or designed for at intersections.

Figure 3-1a illustrates the path of a design vehicle. Figure 3-1b illustrates the path of a control vehicle.

Figure 3-1a: Design Vehicle Path

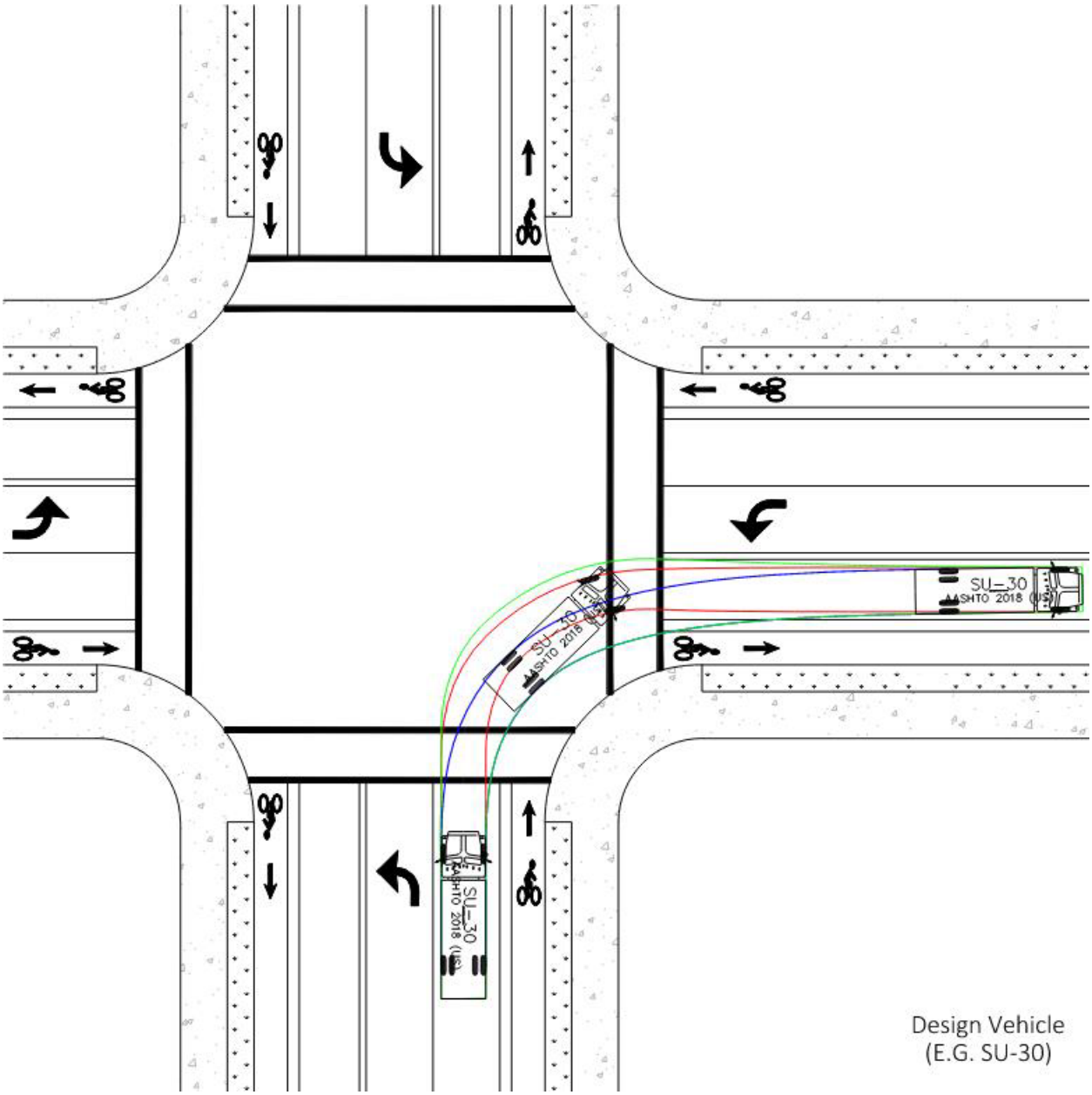
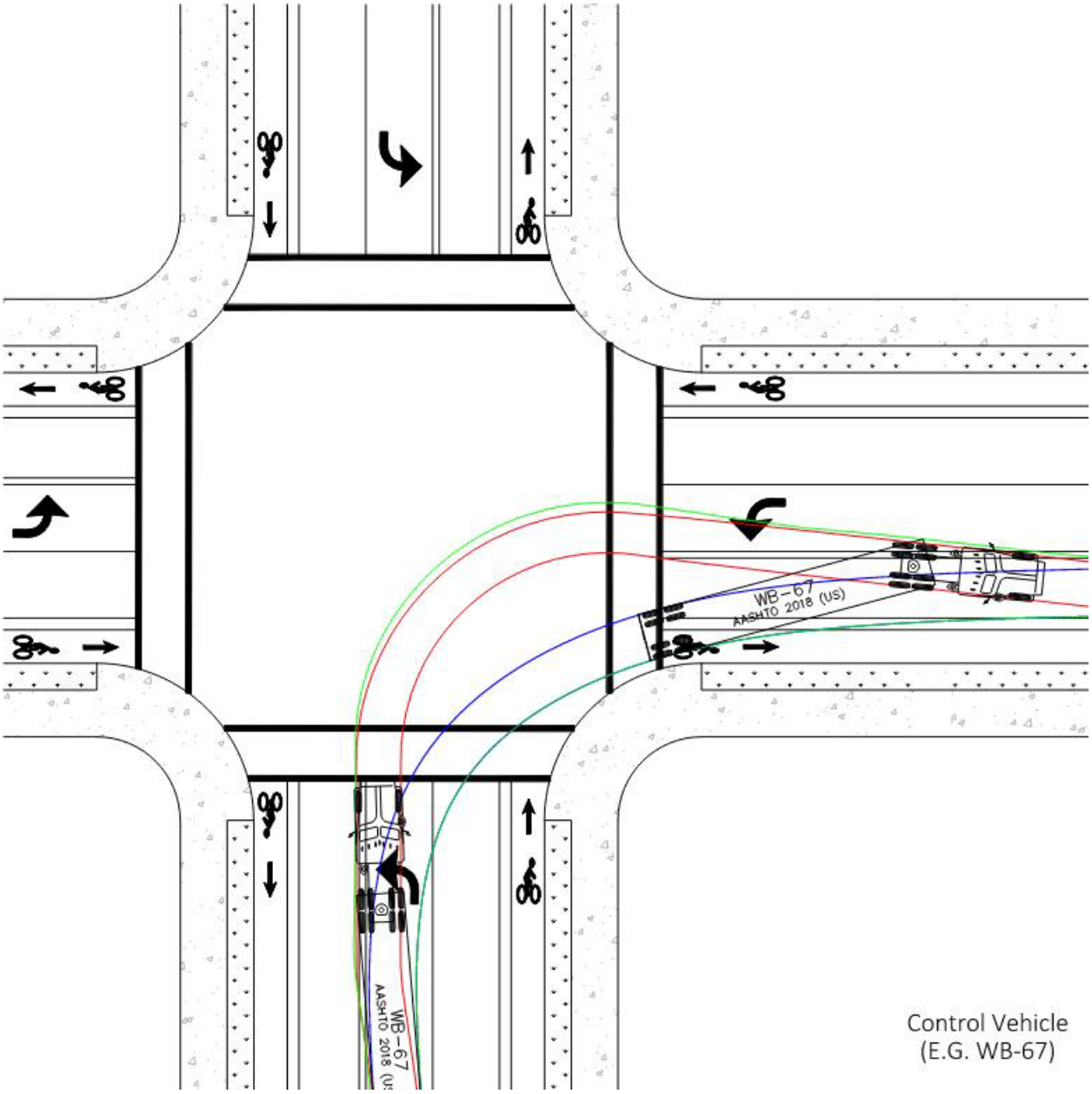


Figure 3-1b: Control Vehicle Path



3.4.1.2 Curb Radii

The minimum curb radii at intersections shown in Table 3-5 are for new roads. Larger curb radii may be required along designated truck routes based on an assessment of design vehicles; smaller curb radii may be allowable based on the land use context. Additional requirements for curb radii are described below.

A. Verify that corner radii provide maneuverability for emergency response vehicles (refer to City Fire Code).

B. Curb radii shall be approved by the City Engineer based on an assessment of design and control vehicle considerations as well as pedestrian and design speed considerations.

C. The minimum right-of-way radii shall maintain at least the same distance from right-of-way to edge of pavement or curb as the lower classified roadway.

D. In Table 3-5, if a designated bicycle lane or on-street parking exists on either intersecting roadway, then the initial radii may be reduced by 5 feet.

Table 3-5: Minimum Curb Radii

Major Roadway	Intersecting Roadway (ft)			
	Major Arterial	Minor Arterial	Collector	Local
Major Arterial	35’	35’	30’	25’
Minor Arterial	N/A	30’	30’	25’
Collector	N/A	N/A	25’	25’
Local	N/A	N/A	N/A	25’

3.4.1.3 Tangent Approach

To improve intersection safety, new intersections should conform to the tangent requirements of OCMC 16.12.020 unless otherwise approved by the City Engineer. Tangent sections are shown in Table 3-6.

Table 3-6: Tangent Sections

Major Roadway	Intersecting Roadway (ft)				
	Major Arterial	Minor Arterial	Collector	Local	Private Access
Major Arterial	100’	100’	100’	100’	100’
Minor Arterial	N/A	100’	100’	100’	100’
Collector	N/A	N/A	100’	50’	50’
Local	N/A	N/A	N/A	50’	50’

3.4.1.4 Intersection Angle

The intersection angle at intersecting roadways shall be as close to 90 degrees as possible. Intersection angles from 80 degrees to 100 degrees may be considered if approved by the City Engineer. Intersections with a skew angle of more than 10 degrees from a right angle are not allowed unless a design modification is prepared and approved by the City Engineer.

3.4.1.5 Vertical Geometry

At stop-controlled intersections, the crown of the major (higher classification) street shall continue through the intersection. The cross slope of the minor street shall flatten to match the longitudinal grade of the major street. A grade break of 5% or less may be allowed in the profile of the minor street as it crosses the crown of the major street. At intersections where both streets have the same functional classification, the City will either determine the controlling roadway or require the intersection to be designed accordingly.

At signalized intersections—and at intersections that may be signalized in the future—the cross slope of the major roadway should be such that the profiles of both roadways are flattened to a cross slope of 0.5%. This creates a 1% grade for the opposing through traffic rather than a 5% grade break (2.5% normal crown).

At intersections, the cross-slope of both roadways should be flattened so that the pedestrian crossing is ADA compliant. Intersection landings shall be provided according to Section 3.3.

3.4.1.6 Sidewalk Ramps

Sidewalk ramps (detailed in the list below) shall be provided for all directions at each corner of every intersection unless pedestrian safety concerns warrant a crosswalk closure, which the City Engineer must approve.

A. Each street corner shall provide two directional ramps. At T intersections, the crossbar of the "T" should have two crossings equipped with ramps. All T intersections should have at least six ramps, with two ramps on each corner of the intersection. See Figure 3-2.

B. Sidewalk ramps shall be designed according to Std. Dwg. OC509.

C. See current ODOT Standard Drawings for additional ramp details. Figure 3-3 provides an example.

D. See Section 5.8.1 for information about stamped street names.

E. Sidewalk ramps shall be a minimum of 5 feet in width and designed and/or constructed according to ADA and PROWAG requirements.

F. All existing sidewalk ramps abutting a street overlay or pavement reconstruction project shall comply with ADA requirements for sidewalk ramps.

G. All crossings protected by a traffic signal shall have marked crosswalks. Marked crosswalks may be provided at other locations only when approved by the City Engineer based on a pedestrian crossing assessment.

H. Ramps located within marked crossings shall be within the striped width of the crosswalk, excluding the flared wings.

I. Where a crossing is not feasible due to topographical or safety concerns, the crossing can be closed through the approval of the City Engineer. Elimination of a crossing shall not conflict with ADA requirements. When a crossing is eliminated, alternative pedestrian routes with minimal out-of-direction travel should be provided.

Figure 3-2: Sidewalk Ramps at T Intersections

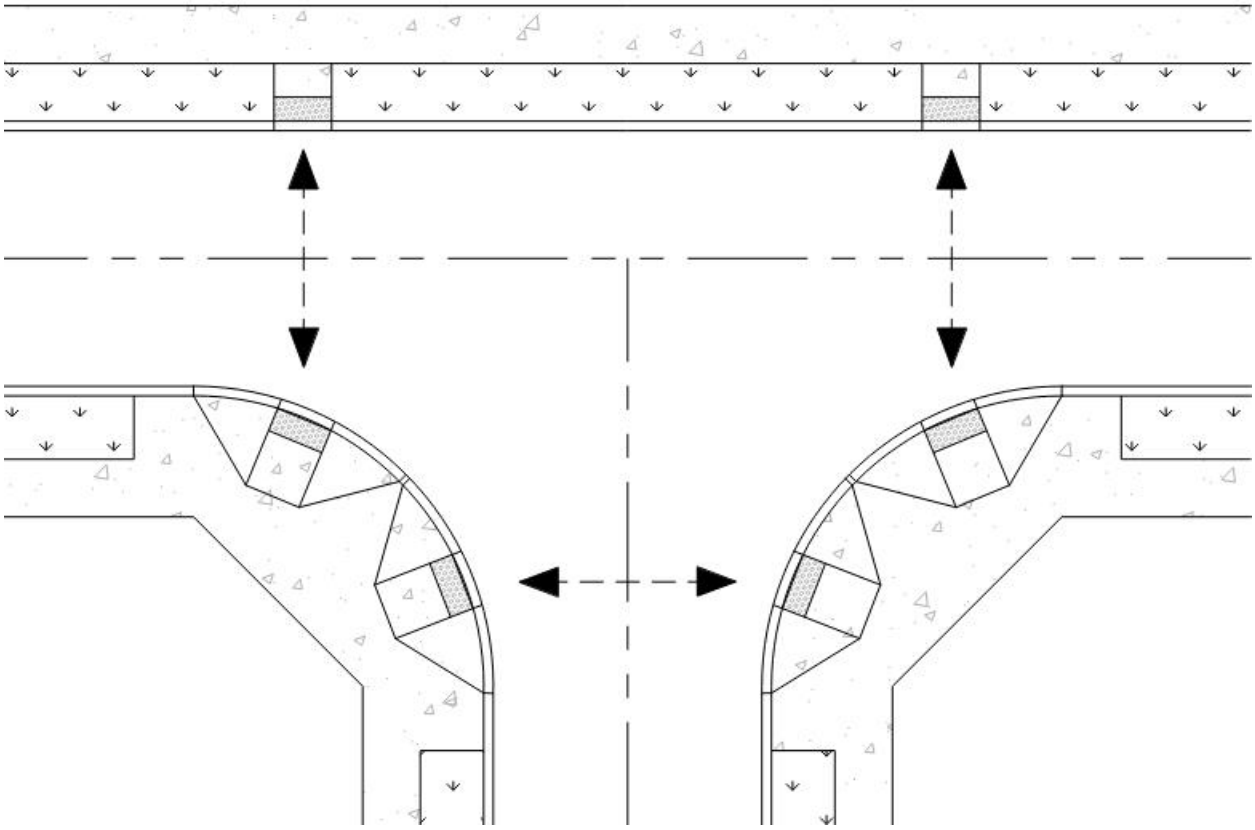
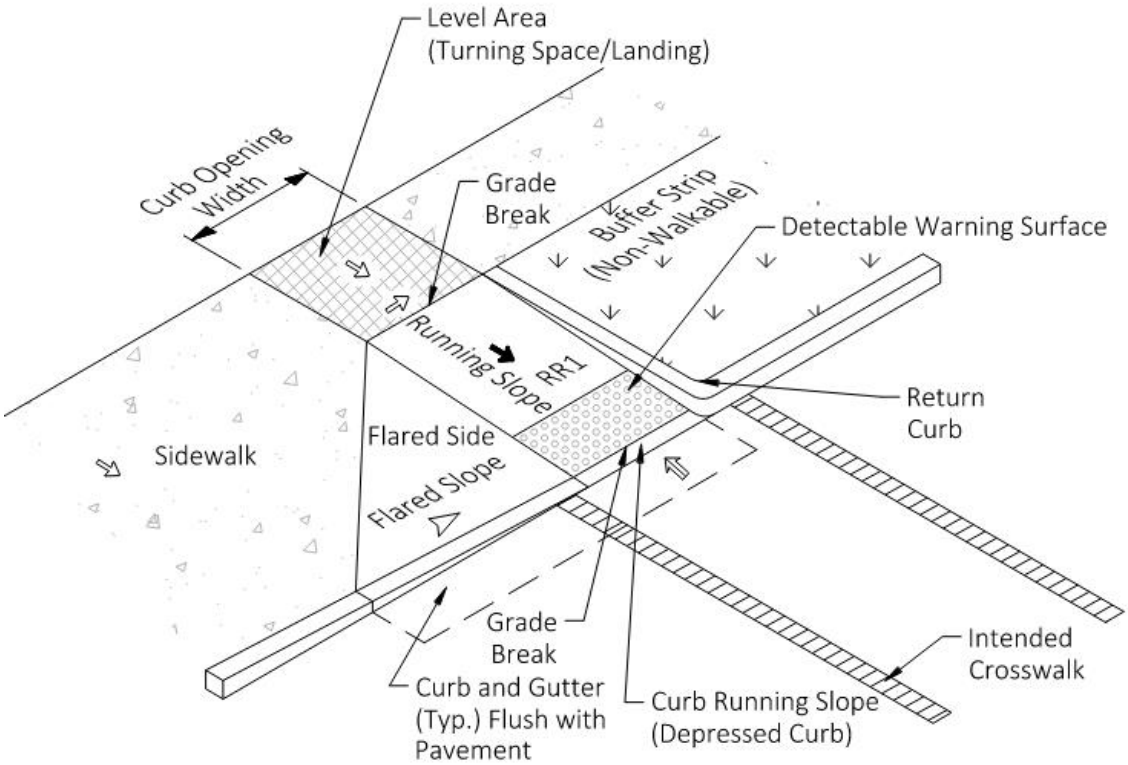


Figure 3-3: Example Ramp Details



3.4.1.7 Turn Lanes

The need for left- or right-turn lanes shall be based on a traffic operational analysis, such as a traffic impact analysis (TIA) (see Section 5.2.1), and/or as dictated by the Oregon City TSP or City Capital Improvement Program (CIP). The following general rules apply:

A. Queue storage estimates shall be based upon a traffic operational analysis.

B. Left-turn lanes, when provided, shall have a storage queue of at least 50 feet.

C. Left- or right-turn lanes shall be based on ODOT's *Highway Design Manual.*

3.4.1.8 Pedestrian Refuge Islands

Medians that are crossed by a pedestrian access route and accessible route islands shall comply with ADA requirements as identified in Oregon City ADA Design Review Checklist—Medians/Traffic Islands (See Appendix C) and depicted in Oregon Standard Drawing RD710.

3.4.1.9 Roundabouts

Roundabout geometric design requires balancing design objectives with design flexibility to achieve multimodal planning and design objectives. When their geometric features promote slow entering and circulating speeds, roundabouts have fewer and less severe collisions. Undesirable roundabout geometry negatively influences roundabout operations by affecting driver lane choice and behavior through the roundabout.

A roundabout's basic form and features are influenced by location, desired capacity, available space, required lane numbers and arrangements, design vehicle, and other geometric attributes unique to each site. Design outcomes depend on the surrounding context and associated speed environment. Compared to other contexts, rural environments may have high approach speeds and low bicycle and pedestrian use. In urban environments, where bicycle and pedestrian safety is a primary concern, roundabouts typically have significantly different design objectives.

Many design techniques are substantially different for single-lane roundabouts than for multilane roundabouts with two or more lanes. Roundabouts in unique, low-volume/speed, or constrained reconstruction locations may include combinations of traversable and non-traversable features, including splitter islands and central islands. These configurations may require special consideration compared to roundabouts with non-traversable central island features.

Roundabout design is an iterative process that must consider and balance a variety of design objectives while working within site-specific constraints. Optimizing roundabout operational performance and maximizing safety require customizing a design rather than relying on a design template.

Roundabout intersections shall be designed according to *NCHRP Report 672 Roundabouts: An Informational Guide*. Roundabout consideration per Section 5.3 should happen before the approval of a traffic signal.

Roundabouts with pedestrian facilities shall comply with ADA requirements as identified in PROWAG Section R306.3. Additional guidance on pedestrian crossings at roundabouts can be found in *NCHRP Report 834: Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities.*

3.5 SIGHT DISTANCE

Sight distance shall be determined and approved according to the procedures in the current AASHTO *Green Book* or AASHTO's *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)*. The OCMC includes additional guidance as noted in the following sections.

3.5.1 Intersection Sight Distance

Intersection sight distance (ISD) should be evaluated according to OCMC 10.32. This applies to the design of new streets and driveways as well as to the placement of any object located within or behind the public right-of-way. ISD must comply with the following guidelines:

A. No object taller than 36 inches or plant capable of growing taller than 36 inches is permitted within a sight clearance area. Poles, tree trunks, and similar objects less than 12 inches in diameter may be allowed in the sight clearance area if it can be proven that such obstructions do not prevent the continuous view of the vehicle approaching the intersecting street.

B. Tree locations should be verified so they do not obstruct visibility of signing. Trees that obstruct signing should be removed or located elsewhere.

    1. Maintain existing street tree and tree-sized shrubs located within or overhanging the public right-of-way or visual clearance zone by trimming to a minimum of 8 feet above ground level per OCMC 10.32.030.

2. Existing trees or tree-size shrubs located within or overhanging the public right-of-way shall be kept trimmed to a minimum of 10 feet above local streets or alleys.
3. Existing trees or tree-size shrubs located within or overhanging the public right-of-way shall be kept trimmed to a minimum of 12 feet above collectors and arterials.
4. Trees shall be maintained following OCMC 12.08.025.

C. Adjacent property owners are required to maintain adequate sight distance at intersections and driveways.

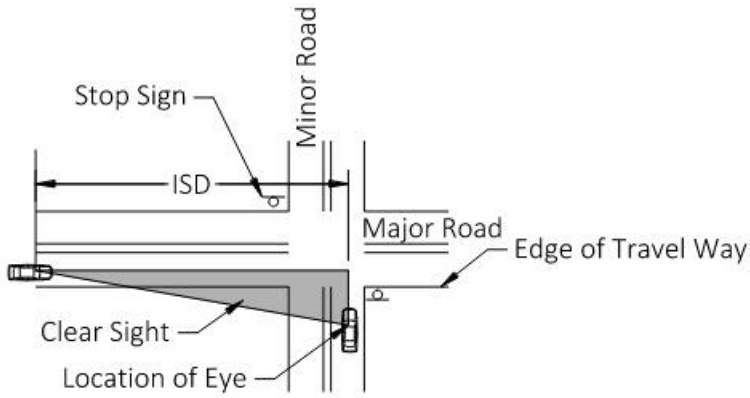
D. ISD is measured from a point on the centerline of the minor road/driveway 14.5 feet from the edge of traveled way of the major road. It is measured from a height of 3.75 feet on the minor road to an object height of 4.5 feet on the major road.

E. The required ISD is based on the posted speed limit of the major road (shown in Table 3-7 and Figure 3-4).

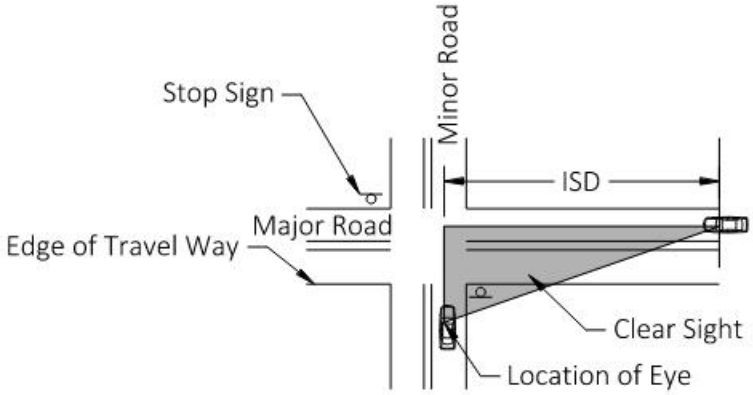
Table 3-7: Intersection Sight Distance

Intersection Sight Distance	
Posted Speed Limit (mph)	Required Sight Distance (ft)
25	250’
30	300’
35	350’
40	400’
45	450’

Figure 3-4: Intersection Sight Triangles



Clear Sight Triangle For Viewing



Clear Sight Triangle For Viewing

3.5.2 Stopping Sight Distance

Stopping sight distance (SSD) must be evaluated at horizontal and vertical curves, intersections, crosswalks, and any other scenario where a driver's view of the roadway ahead may be skewed. Sight line easements must meet SSD requirements. SSD must be evaluated per the most current AASHTO *Green Book*.

3.6 ROADSIDE CLEARANCE

A roadside clearance shall be provided on all street improvement projects according to guidance for urban areas in the most recent AASHTO *Roadside Design Guide.* The designer should follow the AASHTO *Roadside Design Guide* and key topics below.

A. No fixed object (e.g., new light pole, utility pole, street furniture, trash can, or artwork) can be closer than 2 feet to face of curb.

B. At street corners, no fixed object should be taller than 3 feet to maintain vision sight triangles.

C. Sign placement should follow City Standard Drawings, with a 6-inch clearance between the face of curb and the edge of the sign.

D. Mailboxes within the clear sight area must be constructed according to Std. Dwg. OC519.

3.7 TRAFFIC CALMING

The ODOT *Blueprint for Urban Design,* Section 3.2.4, explains how to achieve target speeds on highways within urban areas. Several traffic calming design treatments may be appropriate based on the context of the road. The City Engineer must approve all treatments. Coordination with emergency providers, transit agencies, Oregon City School District, and the Clackamas Fire District #1 needs to occur before traffic calming treatments are installed to confirm potential impacts to emergency and transit routes.

Traffic calming refers to street design techniques that recreate safe, slow, residential, and mixed-use streets without significantly changing vehicle capacity. The goal is to mitigate the impacts of traffic on neighborhoods and business districts that need greater balance between safety and mobility. Traffic calming seeks to influence driver behavior through physical and psychological means, resulting in lower vehicle speeds or through traffic volumes. Physical traffic calming techniques outlined in the Oregon City TSP include but are not limited to:

A. Narrowing the street by providing curb extensions/bulb-outs or midblock pedestrian refuge islands.

B. Deflecting the vehicle path vertically by installing speed humps, speed tables, or raised intersections (refer to Std. Dwg. OC528).

C. Deflecting the vehicle path horizontally with chicanes or roundabouts.

D. Narrowing travel lanes and providing visual cues (e.g., buildings, street trees, on-street parking, or landscaping) next to the street to create a sense of enclosure that prompts drivers to intuitively reduce vehicle speeds.

The Oregon City Neighborhood Traffic Fact Sheet outlines additional traffic calming techniques and weighs the benefits and drawbacks of each.

3.8 CUL-DE-SACS, EYEBROWS, AND OTHER DEAD-END ROAD TREATMENTS

As outlined in OCMC 16.12.025, the City discourages the use of cul-de-sacs, eyebrows, hammerheads, and permanent dead-end streets. These treatments should only be considered if construction of a through street is found to be impracticable due to topography or some significant physical constraints, such as geologic hazards; wetland, natural, or historic resource areas; pre-existing dedicated open space; pre-existing development patterns; or arterial access restrictions. If one of these treatment options is deemed necessary based on discussions with the City, general requirements include:

A. At dead ends, a cul-de-sac must be constructed per Std. Dwg. OC503. Cul-de-sacs must have a turnaround radius of 48 feet. If a constrained section has been approved, a 41-foot turnaround may also be approved. Refer to OCMC 16.12.025 for additional details and requirements.

B. Temporary dead ends on roads with planned future extensions must have an end-of-roadway marker per Std. Dwg. OC525. The City Engineer can approve street barricades (per Std. Dwg. OC512) in place of an end-of-roadway marker on local streets.

C. Eyebrow corners may be constructed on new local streets per Std. Dwg. OC518. Stopping sight distance must be evaluated at all new eyebrow corners, and sight-line easements may be required.

D. Hammerheads are only allowed on Private Streets.

If these requirements cannot be obtained due to constraints, then approval from the City Engineer is required through the design modification process. Section 3.11 provides additional requirements for street design features based on required access for fire apparatuses.

3.9 DRIVEWAYS

Driveways must meet the requirements in OCMC 16.12.035 and be constructed per Std. Dwg. OC504-OC506. This section provides a starting point for designers considering driveways and is not exhaustive of all information. Minimum driveway spacing is determined by the functional classification of the road (shown Table 3-8). Minimum and maximum driveway widths are determined by the property zoning (shown in Table 3-9). All new and replaced driveways must meet ADA and PROWAG requirements for accessibility. As more types of housing and styles of development change over time, OCMC 16.12.035 shall take precedence if any conflict exists. These charts are provided only as reference guides which mirror City Code at the time of adoption.

Table 3-8: Driveway Spacing Standards

Street Functional Classification	Minimum Driveway Spacing Standards	Distance (ft)
Major Arterial	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	175’
Minor Arterial	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	175’
Collector	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	100’
Local	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	25’

Table 3-9: Driveway Approach Widths

Property Use	Minimum Driveway Approach Width (ft)	Maximum Driveway Approach Width (ft)
Single family	10’	24’
Duplex	10’	24’
3- or 4-plex	10’	36’
Multifamily	18’	30’
Commercial, industrial, office, institutional, mixed-use, and/or nonresidential	One-way: 12’ Two-way: 20’	40’

3.10 ALLEYS

Alleys are only allowed if required by an Oregon City Concept Plan. Alleys must be private.

3.11 PRIVATE STREETS

In certain circumstances, creating a private roadway may be permitted if it is the only reasonable way to provide access that minimizes impact to the proposed lots or parcels. Requirements for private streets include:

A. Design and construction of a private roadway widths, cross section, and design speed must be consistent with the design standards for public roads classified as local streets, except as noted in these *Standards* (Section 3.0).

B. All private streets must meet ADA accessibility standards; sidewalks and sidewalk ramps on private streets must be designed accordingly.

C. The City will not be responsible for maintaining private roads. Formal maintenance agreements or equivalents should be established to ensure private responsibility for future maintenance.

D. Private streets and their respective easements must be distinguished from public roadways. Any reservations, restrictions, and maintenance agreements related to the created private roadways must be described in the land division plat or deed records.

E. The Engineer of Record and/or City Project Manager must consider utilities and roadway drainage.

F. Private streets must also comply with Fire Code for load and fire apparatus access requirements if they are designated fire apparatus access roads. See Section 3.11 for additional information on fire standards.

G. Documents defining ownership, use rights, and allocation for liability for maintenance of private streets must be submitted to the City before or in conjunction with final public facility permit approval.

H. A blue street name sign must be posted at each private street entrance from a public street per OC521-522.

3.12 FIRE STANDARDS

City streets shall be designed and constructed based on the information presented in the 2022 Oregon Fire Code (OFC), which is based on the 2021 International Fire Code, or most recent code if a newer one exists. City amendments to the Oregon Fire Code are outlined in OCMC 15.40.030. Oregon City is located within Clackamas Fire District #1. Additional resources for the design of access roads, fire flow requirements, and hydrant placement include:

A. The *Fire Code Applications Guide*

B. Appendix D of the Oregon Fire Code

C. Clackamasfire.com

If the guidance in this section cannot be achieved, then a design modification is required for approval by City Engineer.

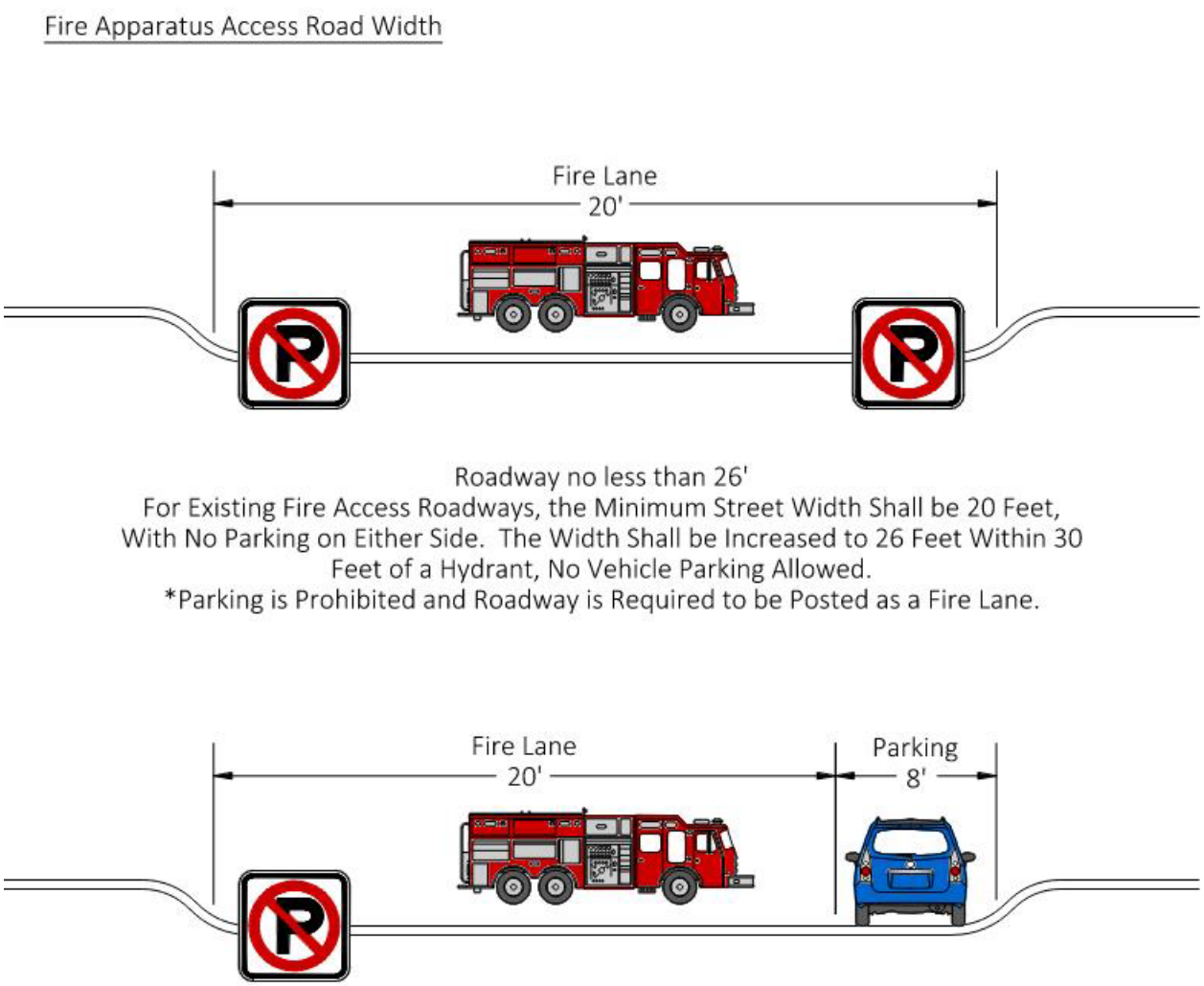
3.12.1 Roadway Cross Section for Fire Apparatus

Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles, “No Parking” signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Table 3-10 and Figure 3-5 provide the appropriate guidance.

Table 3-10: Roadway Cross Section for Fire Apparatus

Roadway Paved Width	On-Street Parking
26 ft or less	None
26–32 ft	One side
32 ft or more	Both sides

Figure 3-5: Guidance for Fire Apparatus



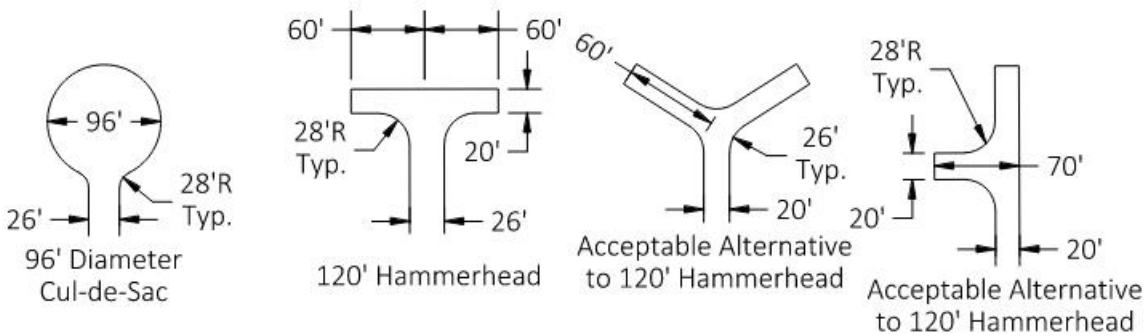
3.12.2 Fire Access Slope

Based on the Oregon Fire Code, Appendix D, D103.2 Grade, fire apparatus access roads shall not exceed 12% in grade, with up to 15% allowed if sprinklers are installed, unless it is approved by the Clackamas Fire District #1 Fire Chief. Intersections and turnarounds have a maximum grade of 5%. OCMC 16.12 provides additional information.

3.12.3 Dead-End Roads and Turnouts

Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround. Dead-end fire apparatus access roads in excess of 500 feet in length shall have a driving surface width of no less than 26 feet. Diagrams of approved turnarounds are shown in Figure 3-6 and OFC 503.2.5.

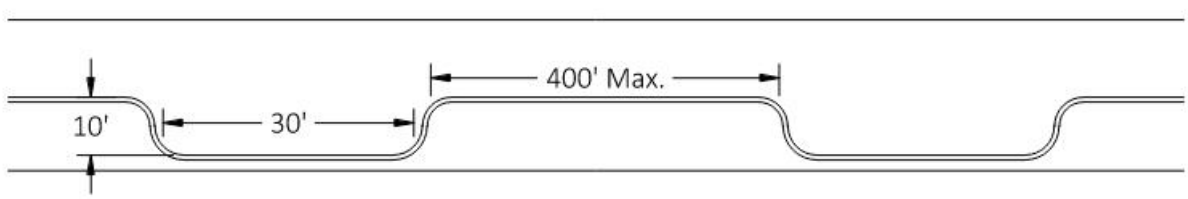
Figure 3-6: Dead End Roads



Source: *Fire Code Applications Guide*

When any fire apparatus access road exceeds 400 feet in length, turnouts 10 feet wide and 30 feet long shall be provided in addition to the required road width and shall be placed no more than 400 feet apart, unless otherwise approved by the City. These distances may be adjusted based on visibility and sight distances. Figure 3-7 provides a diagram of a turnout.

Figure 3-7: Turnouts



Source: *Fire Code Applications Guide*

4.0 MULTIMODAL DESIGN

All streets within the City should be multimodal to serve a range of needs for all street users, including pedestrians, bicycles, motor vehicles, transit, and freight. The adjacent land use and context, functional classification, and street network connectivity can influence the street design and how the transportation system serves each user. To account for this, Oregon City classified the street system into a hierarchy organized by function and street type. These classifications ensure that streets reflect the neighborhoods through which they pass and that they consist of a scale and design appropriate to the character of the abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes, including people walking, biking, using transit, driving, and moving goods. Within these street classifications, context-sensitive design may result in alternative cross sections. The Oregon City multimodal street system is further described in the Oregon City TSP.

Chapter 4 outlines the standards for multimodal design, and the following sections discuss design guidance and standards for each travel mode.

4.1 PEDESTRIAN DESIGN

All pedestrian improvements shall comply with the PROWAG standards for a pedestrian access route. The specific provisions of the PROWAG standards for pedestrian access routes can be found in the Clackamas County ADA Design Review Checklist—Sidewalk/Multiuse Path (see Appendix C). The Oregon City TSP provides a map for future pedestrian connectivity planned throughout the City. Additional requirements for pedestrian design in the public right-of-way are described below.

A. Pedestrian facilities are required on both sides of all City streets per City Code and policies. Pedestrian facilities may include sidewalks and/or a shared-use path.

B. If right-of-way or public easement is adequate, the development is required to connect new pedestrian facilities to existing facilities that are terminated midblock and are within 15 feet of the proposed pedestrian facility. This includes associated improvements, such as curb, drainage, and landscaping.

C. Minimum widths for sidewalks shall be per OCMC 16.12.016, Oregon City Concept Plans, or other adopted plans.

D. Shared-use paths are allowed as an alternative or in addition to sidewalks (see Section 4.3).

E. All pedestrian facilities should be located adjacent to a landscape strip or other physical buffer from vehicular traffic unless otherwise approved. See Chapter 10 for more information on landscape design.

F. All roadway improvements, including sidewalks and shared-use paths, should be constructed within the public right-of-way. Sidewalks and shared-use paths may be located within a public easement if approved.

G. Refer to Chapter 3: Geometric Design for additional details regarding horizontal and vertical clearance and curb ramps.

4.1.1 Pedestrian Crossings

The ODOT *Blueprint for Urban Design* (Chapter 3, Table 3-9) provides target pedestrian crossing spacing that depends on the context classification identified for ODOT urban roadways. A range, rather than a single target, offers flexibility for practitioners to make decisions based on roadway network characteristics (e.g., frequency and spacing of intersections), pedestrian destinations (e.g., transit stops), and a cluster of land uses.

4.1.1.1 Mid-Block Crossings

Marked midblock crosswalks may be considered in the following cases and may be provided if justified per the MUTCD:

A. On arterial or collector roadways with a posted speed of 35 mph or less where existing intersections, proposed intersections, or existing crossing opportunities are more than 330 feet apart.

B. In locations with existing or anticipated moderate-to-high pedestrian volumes.

Midblock crosswalks should be generally pursuant to the recommendations of Institute of Transportation Engineers (ITE) *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities: An ITE Proposed Recommended Practice*. They should be designed and constructed with the following features:

A. A raised concrete median when crossing three or more lanes of traffic.

B. Curb ramps meeting ADA requirements—curb ramps on both sides of the street per these *Standards* (see Appendix C).

C. Curb extensions in areas where on-street parking lanes are present to enhance pedestrian visibility.

The ODOT *Traffic Manual* provides guidance and criteria to determine the appropriate treatment at crosswalk locations based on the number of lanes, refuge island, average annual daily traffic (AADT), and posted speed.

An engineering study documenting the need, location, and proposed treatment for the crossing should be prepared for approval by the City Engineer.

4.2 BICYCLE DESIGN

Encouraging and accommodating bicycles as a transportation mode is a priority for the City. Appropriate bicycle facilities need to be evaluated and included early in project planning and development. The ODOT *Blueprint for Urban Design* (Chapter 3) provides additional information on bicycle facility selection, and the approach is based on FHWA's *Bikeway Selection Guide.*

The ODOT *Blueprint for Urban Design* provides guidance on bicycle facility selection and how it relates to the context classification identified for ODOT urban roadways. It outlines a selection process, provides a tier identification matrix based on volume and speed, and recommends preferred bicycle facility design for the respective context classifications.

Bicycle facilities are required on all City streets classified as collector streets or higher. The standard bicycle lane width is 6 feet based on the City Code. However, when possible, it is desirable on collectors and arterials to have on-street buffered bicycle lanes (6-foot bicycle lane with a 2-foot buffer). Separated bicycle facilities may be necessary in higher-speed environments to improve bicyclists' safety and comfort. The minimum bicycle facility

requirement is on-street buffered bicycle lanes, but the preferred solution is to provide separated bicycle facilities. Alternative applications may include raised bicycle facilities or shared-use paths. Refer to Oregon City area-specific planning documents for guidance. For alternative bicycle facility design, refer to FHWA's *Separated Bike Lane Planning and Design Guide.* See Table 3-1 for additional information.

Refer to Std. Dwg. OC529 and OC529A for additional design details.

The Oregon City TSP provides a map for bicycle routes and connectivity planned throughout the City.

4.3 SHARED-USE PATHS

Shared-use paths may be allowed as an alternative or in addition to sidewalk and separated bicycle facilities in constrained environments that require City Engineer approval. The Oregon City Trails Master Plan outlines design guidance for regional community and local trails, including information about shared-use paths for each type of trail. The location of various trails is provided in the Trails Master Plan Map. Integrating shared-use paths can affect the overall street cross section. The Trails Master Plan identifies the path widths depending on the type of trail. The required shared-use path width varies depending on the facility's anticipated use and topography, preservation of significant trees, safety, and right-of-way. Deviation from the cross section identified in the Trails Master Plan must be processed through the modification process. Deviation from the routes identified in the Trails Master Plan must also be processed through the modification process, and the modification request shall include a shadow plat demonstrating how the path will extend through adjacent properties.

The Oregon City TSP provides a map of shared-use paths for existing and future connectivity throughout the City.

Shared-use paths are also identified as "public off-street pedestrian and bicycle accessways" in the OCMC. Pedestrian and bicycle accessways are required through private property or as right-of-way connecting development to the right-of-way at intervals not exceeding 330 feet of frontage, or where the lack of street continuity creates inconvenient or out-of-direction travel patterns for local pedestrian or bicycle trips. Such paths must meet OCMC 16.12.032 requirements.

In some cases, a single path can be implemented to meet the intents and/or requirements of The Trails Master Plan, Oregon City TSP, and OCMC 16.12.032.

4.4 ALTERNATIVE TRANSPORTATION MODES

Alternative transportation modes include micromobility technology, such as e-bicycles, e-scooters, and other modes beyond driving motor vehicles and freight, riding transit, walking, and bicycling. Alternative transportation modes should be considered when planning and designing roadways as emerging technology and new modes become more widely used on the transportation system. Project teams should collaborate and obtain approval from the City Engineer to determine the appropriate place for each user. For example, micromobility technologies, such as e-bicycles and e-scooters, should be planned and designed in coordination with current bicycle facilities.

4.5 TRANSIT

Oregon City is served by TriMet, ClackCo Connector Shuttle, Canby Area Transit (CAT), and South Clackamas Transportation District (SCTD). This section describes information on their specific routes and connections. The TriMet *Bus Stops Guidelines* provides guidance and criteria to plan and design bus stops that are easily

identifiable, safe, accessible, and comfortable to wait for and access a bus. The Metro *Designing Livable Streets and Trails Guide* provides guidance for transit stop placement, transit stop and bikeway design configurations, and transit priority treatments.

Transit streets are defined in the OCMC 17.04.1310. Pedestrian/bicycle accessways must minimize the travel distance to transit streets and stops as well as neighborhood activity centers (Refer to Sections 4.1 and 4.2 for design related information for pedestrians and bicycles, respectively.) The City Engineer may require provisions, including easements, for transit facilities along transit streets where a need for bus stops, bus pullouts, or other transit facilities within or adjacent to the development have been identified. The Oregon City TSP outlines lane widths for streets on transit routes based on the optimum street design information.

4.5.1 General Requirements

A. All transit stops, shelters, and associated appurtenances must be designed and constructed per the PROWAG.

B. Placement of waste receptacles, signs, seating, or any other appurtenance must not infringe on an ADA area or the pedestrian access route, as defined by R302 of PROWAG. Placement also must not compromise direct access between the ADA waiting area and the ADA landing area or access between either ADA area and the sidewalk.

C. Any installation of transit stops, shelters, or associated appurtenances requires approval from the transit agencies prior to obtaining approval from the City Engineer. TriMet should be contacted (Development_Review@trimet.org) to confirm improvements to transit stops and shelters. The design and bus zone needs are customized at each location depending upon service levels, amenities, number of routes, ridership, and turning movements.

D. Before installation, the project must evaluate transit stops, shelters, and associated appurtenances for adequate sight distance.

4.5.2 ADA Landing Area Requirements

A. ADA landing areas shall provide a minimum clear length of 8 feet (measured perpendicular to the curb) and a minimum clear width of 5 feet (measured parallel to the roadway).

B. Where rear-door ADA landing areas are provided, they shall comply with this section.

C. Parallel to the roadway, the grade of ADA landing areas shall be the same as the roadway. Perpendicular to the roadway, the designed grade of ADA landing areas shall be 1.5% or less.

D. ADA landing areas shall connect to streets, sidewalks, or pedestrian circulation paths by ADA-accessible pedestrian access routes.

4.5.3 Transit Stop Clearances

All transit stops must meet the standard clearance requirements shown in Table 4-1.

Table 4-1: Transit Stop Clearance Requirements

Description	Requirement
Sidewalk clearance	Minimum of 5.0 ft of sidewalk clearance.
Accessible pathway	Minimum of 5.0 ft wide paths between shelter and any utility object.
Road clearance	2.5 ft minimum clearance between shelter and edge of curb, assuming pedestrian walking path is behind the shelter.
ADA landing area	See Subsection 4.5.2.

4.5.4 Transit Shelters

Transit shelter placement and orientation must provide the following:

A. 5 feet of pedestrian pass-by, including clearance between poles, hydrants, and other obstacles.

B. An ADA landing area adjacent to the bus stop sign and outside of the shelter.

C. A clear pathway from the ADA waiting area inside the shelter to the ADA landing area.

D. A clear pathway from the rear door landing area to the pedestrian access route.

E. Interior lighting at the shelter for passenger visibility and security.

Transit shelters must meet the clearance requirements shown in Table 4-2.

Table 4-2: Transit Shelter Clearance Requirements

Description	Requirement
ADA waiting areas in shelters	A minimum of 2.5 ft × 4.0 ft space must be kept clear for a mandatory waiting area to accommodate mobility devices.
Visibility	Shelter must not block motorists' or pedestrians' lines of sight.
Building clearance	Minimum 12 inches from buildings, fences, and other structures to the bus shelter in order to allow room for maintenance.
Relation to bus stop	Shelter shall be within 25 ft of the ADA landing Area.
Sight distance	The shelter shall be placed so that the passengers waiting in the shelter can see approaching vehicles.

4.5.5 Transit Stop Seating

A. Benches or seats must not be placed closer than 3.5 feet from the curb or 6 feet from the curb when a travel lane exists immediately adjacent to the curb.

B. Clearance requirements for shelters apply to seating.

C. Seating must be oriented toward the roadway or in the direction of approaching traffic.

D. Furniture must be bolted to the sidewalk using stainless steel drop-in anchors sized according to the furniture manufacturer's recommendations.

4.5.6 Pavement Requirements

A. Any damage to the sidewalk surface resulting from transit stop-related furniture is the transit authority's responsibility to repair (even in the event of an automobile crash).

B. Sidewalk repairs must be completed according to Std. Dwg. OC508.

C. In roadway areas where buses start, stop, or turn—or along roadways with high bus volumes—the following requirements must be met (refer to Chapter 6 for more details about pavement design):

   1. Concrete pavement must be used on roads carrying more than 150 buses per day.

   2. A reinforced concrete pad must be provided at high-volume bus stops and bus pullouts.

4.5.7 Standard Transit Stop Configurations

Standard transit stop configurations are shown in Figure 4-1 through Figure 4-3.

Figure 4-1: Curb-Tight Sidewalk with Bus Shelter

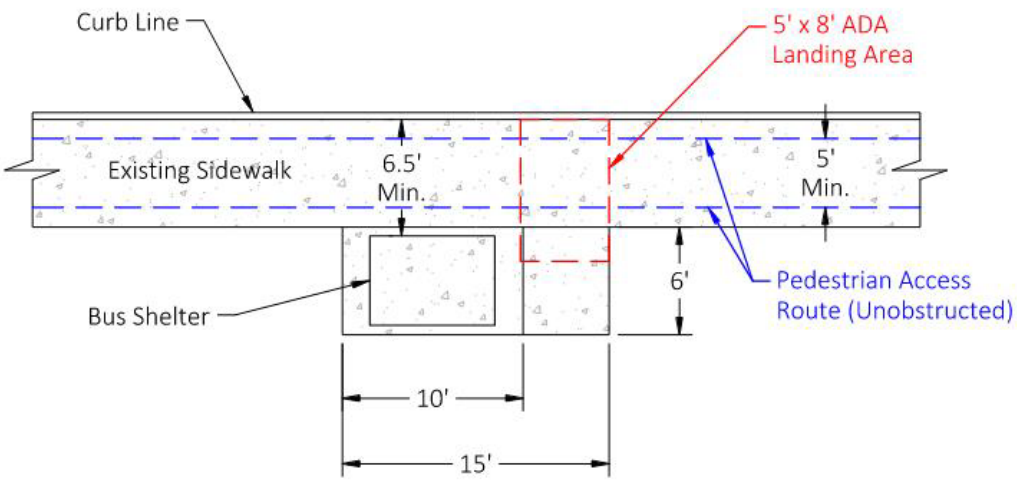


Figure 4-2: Separated Sidewalk with Rear Door Landing Area

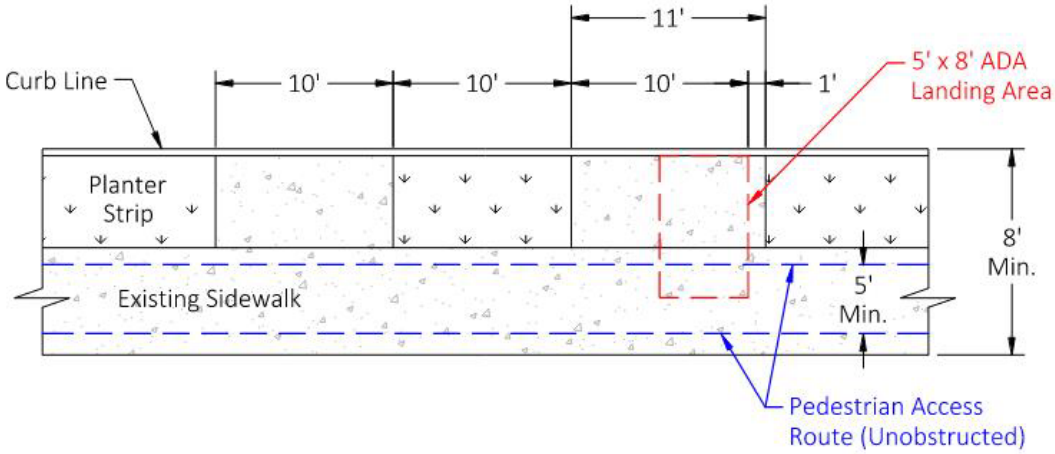
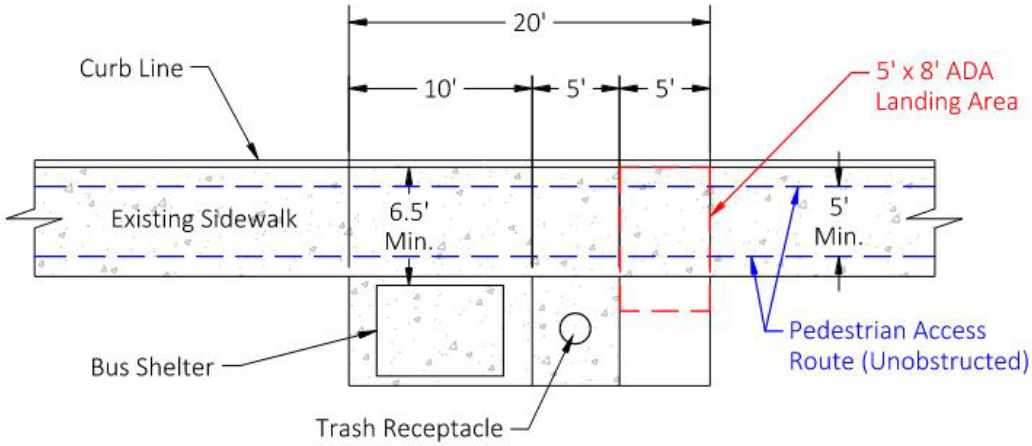


Figure 4-3: Curb-Tight Sidewalk with Shelter and Waste Receptacle



4.6 FREIGHT

Freight routes were designated in the Oregon City TSP to ensure freight trucks can efficiently travel through and access major destinations. The designation of through freight routes provides efficient movement while maintaining neighborhood livability, maintaining public safety, and minimizing roadway system maintenance costs.

The Oregon Highway Plan identifies Interstate 205 (I-205) as a freight route through Oregon City. While ODOT does not classify McLoughlin Boulevard (OR 99E) as a freight route, FHWA does designate it as a truck route.

Much of the freight activity in Oregon City is related to the employment areas located near the southeast corner of the City along Trails End Highway (OR 213), Beavercreek Road, and Molalla Avenue as well as within the Oregon City Regional Center. To allow for efficient movement between these designated areas and regional freight routes, Metro has classified several roadways in the City as freight connectors. The connector roadways link I-205 with the employment areas and include OR 213, Beavercreek Road, and OR 99E. Oregon City has designated these streets as local truck routes to ensure freight is adequately accommodated in the city.

5.0 TRAFFIC ENGINEERING

Chapter 5 provides general traffic engineering requirements and refers to other resources for the following topics:

A. Design speed

B. Operational standards

C. Traffic control

D. Stop control

E. Traffic beacons and signals

F. Signing

G. Pavement markings

H. Special street standards

I. Transportation demand management

J. Construction traffic control

5.1 DESIGN SPEED

The design speed establishes the geometric and roadside design of a road's physical features. Projects should consider street types (commercial, industrial, residential, or mixed-use) when identifying the design speed. The Engineer of Record and/or City Project Manager should coordinate with the City Engineer to confirm the selected design speed. The intent is for the posted speed to be consistent with the design speed.

Design speed is based on Oregon Revised Statutes (ORS) statutory speeds under ORS 801.100 (Definitions) and the criteria as described under ORS 811.105, ORS 811.111, and ORS 810.200. Refer to the ODOT *Speed Zone Manual* for additional information on design speeds for projects.

ORS 810.180 regulates the designation of maximum speeds when they are different from the statutory maximum speed limit of roadways.

Under subsection ORS 810.180 (5)(f), ODOT can delegate authority on low volume roadways to any city or county upon their request. This request can be made for specific roadways or for all low volume roads under the jurisdiction of the requesting agency.

Under subsection ORS 810.180 (5)(g) ODOT can delegate its authority of speed limit setting to any incorporated city.

5.1.1 Changing Speeds

In Oregon, ODOT sets speed limits on all roadways by issuing Speed Zone Orders. The ODOT Speed Zone Manual provides guidance for setting and changing a speed zone. As of January 2023, a state law went into effect that allows cities to set and change speed limits.

At the time of this writing, the City of Oregon City has not determined if it will continue to request ODOT to provide this service or if the City will be taking this service over. Either way, ORS 801.100, 811.105, and 811.111 will remain in effect.

Requests from private citizens are directed to the City Engineer, who will review and assess an applicable approach.

The City can request a speed zone review from ODOT by submitting a request to ODOT. ODOT's Traffic Engineering staff will then use nationally-accepted traffic engineering standards and procedures to review and investigate. Statutes require establishing speed zones on the basis of an engineering study. The engineering study should consider factors such as:

A. Context and functional classifications

B. Speed characteristics

C. Crash history

D. Roadside culture, including pedestrians and cyclists

E. Traffic volumes

F. Roadway alignment, width, and surface

5.2 OPERATIONAL STANDARDS

OCMC 16.12.033 provides mobility standards for City intersections on local roadways and State-owned intersections.

State-owned streets should comply with the mobility targets included in the Oregon Highway Plan. However, some roadways and intersections may be exempt from meeting the State mobility targets for proposed development that is permitted, either conditionally, outright, or through detailed development master plan approval. The Engineer of Record and/or the City Project Manager should review the 2018 Highway 213 Corridor Alternative Mobility Targets for City streets within this corridor area and verify exemptions with the City Engineer.

5.2.1 Traffic Impact Analysis Guidelines

The Oregon City *Guidelines for Traffic Impact Analyses* detail information about the City's required content for a Transportation Analysis Letter (TAL) and a Transportation Impact Study (TIS). In general, the TAL applies to smaller developments that are presumed to have a lesser transportation impact. The TIS applies to larger developments that are presumed to have a greater transportation impact.

5.3 IDENTIFYING TRAFFIC CONTROL

Traffic control at an intersection may include a yield, stop, signal, or roundabout. Section 3.4 provides geometric design guidance for the various types of intersections. Roundabouts should be considered in conjunction with the traffic operational analysis conducted for other traffic control types.

Identifying the appropriate type of traffic control at an intersection can be accomplished through an intersection control evaluation (ICE). ICE is a data-driven, performance-based framework to screen intersection alternatives and identify an optimal solution. The City does not have a specific ICE policy or associated guidance.

However, understanding the fundamental objectives and principles of conducting ICE can guide the decision-making process.

Key objectives when selecting the optimal or preferred intersection control alternative for a given project context include:

A. Understanding the intended context and how operations, safety, and geometry fit that context for each intersection or corridor, including intended users (e.g., pedestrians, bicyclists, passenger cars, transit vehicles, freight, emergency responders, oversize/overweight vehicles).

B. Identifying and documenting the overall corridor or intersection context, including the built, natural, and community environments and the intended performance outcomes of the intersection form.

C. Considering and assessing a wide range of traffic control strategies and other practical improvement concepts to identify a worthy project-level technical evaluation.

D. Comparing engineering and economic analysis results of practical alternatives that consider implementation costs, performance benefits and impacts (e.g., safety, multimodal, operations, environment), and the estimated service life of alternatives.

FHWA's *Intersection Control Evaluations* provides additional guidance to support intersection traffic control decision-making.

5.4 STOP CONTROL

Stop signs are installed where it may be unclear as to who has the right-of-way. Unnecessary stop signs can lead to drivers disobeying signs or creating cut-throughs in neighborhood streets. Before installing stop signs on City streets, the City Project Manager should consult the warrants described in the MUTCD (Section 2B.06 and 2B.07). As outlined in the MUTCD, considerations for stop sign installations include:

A. Traffic volumes

B. Sight distance

C. Crash history

5.4.1 Stop Signs by Facility Type

Requirements for stop signs by facility type include.

A. **Local to Local:** Do not place stop signs at intersections between two local streets unless engineering judgment deems it necessary for safety.

B. **Collector to Local:** Place stop signs on the local street only.

C. **Collector to Collector:** Place four-way stop signs on all approaches.

D. **Collector to Arterial:** Place stop signs on the collector street only.

E. **Arterial to Arterial:** Place four-way stop signs on all approaches, depending on the average daily traffic (ADT).

F. No "except right turn" signs are permitted within the City unless approved by the City Engineer.

G. Stop bars are only painted on collector or arterial streets.

The City Stop Sign Brochure provides general information about stop signs and criteria for two-way and all-way stop control. Criteria for two-way stop signs and four-way or all-way stop signs are provided below. Intersection sight distance requirements and additional information are provided in Section 3.5.

5.4.2 Two-Way Stop Signs

Two-way stop signs are installed at intersections where drivers cannot safely apply the right-of-way rule.

Two-way stop signs are used in the following locations:

A. Where a street enters a through street.

B. Where a safe approach speed is less than 10 mph due to permanent visibility obstructions, such as buildings, trees, or shrubs.

C. Where crash history indicates three or more reported crashes over the past three years that could have been avoided with a stop sign.

D. Where circumstances and crash history indicate that observing the right-of-way rule could still be hazardous and result in safety concerns.

E. Where a local street intersects with a collector or arterial street.

5.4.3 Four-Way or All-Way Stop Signs

A four-way or all-way stop is considered only when an intersection with a two-way stop has a history of crashes and traffic congestion problems.

Four-way stop signs are used in the following locations:

A. Where traffic signals are needed (four-way or all-way stop signs may be used as an interim measure).

B. On local streets where there have been five or more reported crashes in a two-year period that would likely have been prevented by an all-way stop.

C. On through streets where, within a two-year period, the intersection had at least 1.5 crashes per million vehicles entering the intersection that would likely have been prevented by all-way stop signs.

D. Where the number of vehicles entering an intersection averages at least 500 vehicles per hour for any 8 hours of a typical day and the combined vehicular and pedestrian volumes from the minor street average at least 200 per hour for the same 8 hours.

5.5 TRAFFIC BEACONS AND SIGNALS

Traffic beacons and signals may include the following:

A. Traffic signals

B. Pedestrian and bicycle crossing traffic control devices

   1. Midblock pedestrian signals
   2. Pedestrian hybrid beacons (PHBs)
   3. Rectangular rapid-flashing beacons (RRFBs)

5.5.1 General Requirements

Before a traffic signal can be approved, a traffic analysis must take place. Installation and justification of a traffic signal or beacon should be based on operational analysis and warrant analysis outlined in the ODOT *Traffic Signal Guidelines* and the MUTCD. *Clackamas County Roadway Standards* provide additional information on traffic signal analysis in Section 260. FHWA's Safe Transportation for Every Pedestrian (STEP) initiative also provides additional countermeasures to improve pedestrian crossing locations. General requirements are described below.

A. New traffic signals on City roadways should meet at least one of the signal warrants in the MUTCD within 3 years after construction and shall be approved for installation by the City Engineer. Peak-hour volume warrants will only be approved if the intersection serves a special generator with unique peak traffic characteristics.

B. City Project Managers should base the signal cycle length and phasing for a new or modified traffic signal during different times of day on an approved signalized intersection operations analysis. Guidelines for selecting signal phasing are included in the ODOT *Traffic Signal Guidelines*. These guidelines also include warrants for left-turn protected, protected/permissive, and permissive/protected signal phasing as well as for protected right-turn signal phasing.

C. New traffic signals should be separated from existing or planned traffic signals by a minimum of ¼ mile unless evidence supports adequate long-term operations at a lesser spacing.

D. Mixing roundabouts and signals along a corridor requires additional evaluation of the unique intersection control to verify the design, safety performance, and traffic operations of the entire corridor. Evaluations may include addressing the presence of a single adjacent signal or a broader corridor with multiple signals that could affect the roundabout. *NCHRP Report 772: Evaluating the Performance of Corridors with Roundabouts* (NCHRP Report 772) researched corridors containing signals and roundabouts and noted the need to conduct corridor-specific evaluations to determine which form of intersection control is operationally preferred on a given corridor and to understand the effects of mixing various types of intersection control. Refer to NCHRP Report 772 for additional information on performance measurement tools and techniques to assist in the evaluation of a roundabout corridor.

E. All new or modified traffic signals require installation of pan/tilt/zoom (PTZ) cameras.

F. All new or modified traffic signals should include 2-inch conduit. If possible, fiber connections should also be included.

G. Plans must incorporate emergency vehicle signal preemption into the signal operation of all approaches to the intersection. Railroad signal preemption is required when tracks are 200 feet or less from a signalized intersection. A green track clearance by vehicles and pedestrians must be incorporated into the signal preemption design.

H. Separate bicycle detectors should be placed in all striped bicycle lanes and in streets with sharrows. All approaches of a signalized intersection must have pedestrian crossings unless traffic studies show that crosswalks should not be allowed. When pedestrian signal heads are not installed, the crosswalk must be closed by the City, with posted signs indicating that the crosswalk is closed. Sidewalk ramps or pedestrian landings are required for access to pedestrian signal push buttons.

I. Audible pedestrian signals (APS) should be used at all pedestrian crossings.

J. Signalized intersections with pedestrian access routes must comply with ADA requirements as described in the most recent version of ODOT's *Traffic Signal Policy and Guidelines*. This includes accessible pedestrian signals and push buttons that comply with the MUTCD and meet the provisions of PROWAG.

K. RRFBs should be used at midblock pedestrian and bicycle crossings with traffic volumes or crash history that justify this type of device.

L. New or existing schools with an expansion of 20% floor area or greater are required to install school zone flashers on roadways that are classified as arterial or collector roadways if the proposed or existing school speed zone signing supports a school speed 20 mph zone and the City supports a school speed zone installation. In addition to school zone flashers, radar speed signs may be required along arterial roadways. The Applicant is required to provide funds equal to 20 years of the maintenance and power of the school zone flasher and/or radar speed sign.

All traffic signal designs shall be reviewed by Clackamas County, who maintains all City traffic signals on behalf of the City. Clackamas County Standards take precedence for traffic signal design if any conflicts exist.

5.5.2 Design Standards

All new or modified traffic signal and beacon installations on City roadways must be designed based on the following resources and standards:

A. Clackamas Country Roadway Standards, Section 260

B. MUTCD

C. Oregon Supplement to the MUTCD

Specific signal design features to be included in a City signal design include:

A. Signal Poles/Heads

1. Use mast arm poles where possible.

2. Use louvered traffic signal backboards.

3. Use elevated plumbizers for signals on mast arms whenever possible.
4. Use decorative bases and powder coat all signal equipment (e.g., cabinets, poles, mast arms) black.
    a. No decorative bases are used on RRFBs and pedestrian pedestals.
5. Materials used in the construction of traffic signals shall be approved by the City Engineer and comply with the Oregon Standard Specifications for Construction and the *Clackamas County Roadway Standards*.

B. Detection

1. Use radar detection per current ODOT Standard Specifications for Construction and Standard Drawings and Oregon Traffic Signal Guidelines.

C. Wiring

1. Use Clackamas County color coding for signal wires.
2. Use International Municipal Signal Association (IMSA) cable in conduit, poles, and arms.
3. Use single conductors for power service and street lighting.
4. Install electrical meter bases without the meter for power service.

D. Power Source

1. Use electric power sources (coordination with PGE required). Solar options are not allowed.

E. Intelligent Transportation System (ITS)

1. Coordinate with the City Engineering Group regarding applicable ITS applications.
2. Refer to the Clackamas County ITS Action Plan.

F. Maintenance

1. Clackamas County maintains all beacons and traffic signals on City and County facilities. ODOT maintains all beacons and traffic signals on State facilities.

5.6 SIGNING

Signing materials and layout plans should be approved by the City Engineer before installation. City Project Managers must base signing design and construction on the following:

A. *Clackamas County Roadway Standards*, Section 270

B. MUTCD

C. Std. Dwgs. OC521, OC522, OC523, and OC524

5.7 PAVEMENT MARKINGS

The City Engineer must approve all striping materials and layout plans before installation. Striping design and construction must be based on the following:

A. ODOT Standard Drawings TM500 series

B. *Clackamas County Roadway Standards*, Section 280

C. MUTCD

D. Std. Dwg. OC529 and OC529A

City-specific pavement marking design standards that may differ from the ODOT and County standards include:

A. All pavement markings must be thermoplastic, and all longitudinal markings must be Method A extruded, surface, non-profiled, thermoplastic.

B. Green thermoplastic is allowed on arterial streets.

C. Elongated arrows are required.

D. Recessed pavement markers should be used.

E. All intersections that include stop signs shall include painted stop bars.

5.8 SPECIAL STREET STANDARDS

5.8.1 Stamped Sidewalk Street Names

For all projects, stamped street names are required on sidewalk corners at intersections in the following areas:

A. McLoughlin Conservation District

B. Willamette Falls Downtown District Zone

C. Canemah Historic District

D. Downtown Parking Overlay District

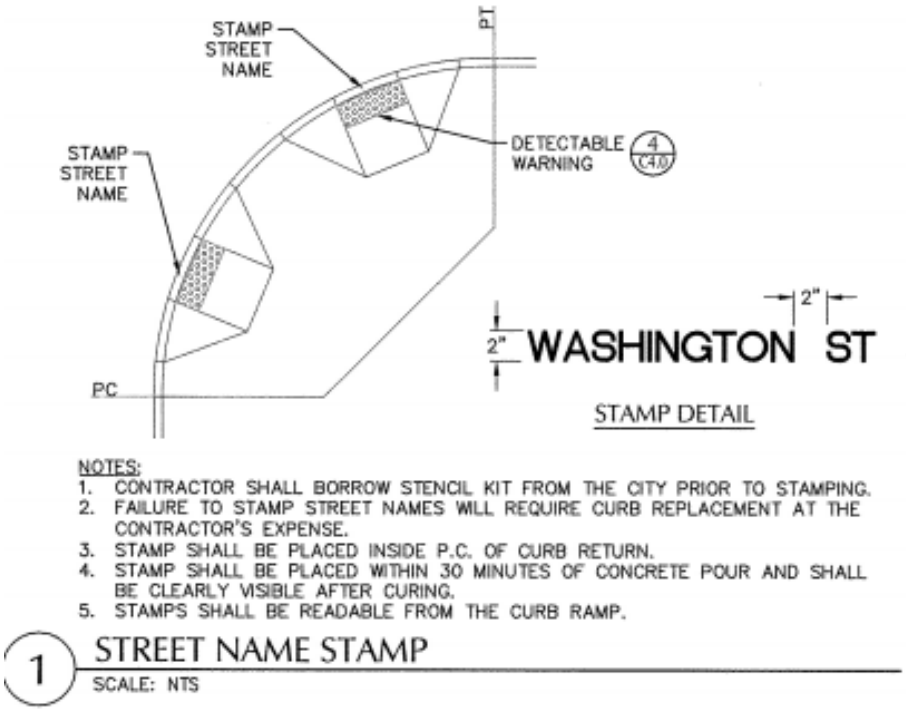
E. “Presidential” Streets not listed in other districts up to Division Street or 18th Street

For sidewalk repairs and/or reconstruction projects, street names in existing sidewalk corners must be preserved or re-stamped into the new concrete.

The Engineer of Record must coordinate with the City regarding borrowing the stencil kit from the City.

Figure 5-1 provides an example of a Street Name Stamp.

Figure 5-1: Street Name Stamp



5.8.2 Sidewalk Scoring

Requirements for sidewalk scoring include:

A. All sidewalk scoring shall follow OC508, except as noted.

B. Decorative sidewalk scoring shall occur in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

C. Decorative Sidewalk Scoring Detail applies to all locations, except the Washington Street corridor between Abernethy Road and 7th Street.

5.8.3 Tree Grates

Special tree grates shall be used in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

A. **Tree Grates:** Street trees shall have tree grates with frames and tree supporting systems. Tree grates and frames must meet the following requirements:

1. Two-piece cast iron grate with a natural finish with fitted frame manufactured by FairWeather SF or approved equal. Frame shall include rebar studs on three sides for sidewalk mounting, and one side shall include steel tabs to accept expansion bolts for curb mounting.

2. Where 10-foot sidewalks are being constructed, a tree grate with frame shall be the FairWeather SF CNK 4872, size 48” × 72” (overall dimensions 4 feet × 6 feet). Where 8-foot sidewalks are being constructed, a tree grate with frame shall be the FairWeather SF style IVY 3660, size 36” × 60” (overall dimension 3 feet × 5 feet).
3. Submit to the City for approval.

5.8.4 Benches

A. Benches shall be provided in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

B. The type of bench to be used is Model No. 2123-6 Restoration Seat, BLACK CASPAX-7 powder-coated cast iron frames, Alaska yellow cedar slats, surface mount, 6-foot length, manufactured by Outdoor Cathedral, LLC or an approved equal product.

5.8.5 Litter Receptacles

A. Litter receptacles shall be provided in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

B. The type of litter receptacle to be used, as of this writing, is Model No. 2816-DT-P, Renaissance litter container, side empty, with dome top, BLACK CASPAX-7 powder-coated steel finish, pedestal mount, manufactured by Outdoor Cathedral, LLC. Designers shall verify the current design to be used when needing to add these to their project.

5.8.6 Decorative Street lighting

Decorative street lights shall be provided in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue according to Std. Dwg. OC536. Refer to Chapter 9 for additional street light details. While some decorative lighting exists in other neighborhoods, it is the intent of this code to limit decorative street lighting to the listed areas unless a land use decision or concept plan requires something different. In those cases, the design styles shall match those within Chapter 9 unless a specific new design is designated for a new neighborhood during the land use process.

5.9 TRANSPORTATION DEMAND MANAGEMENT

As noted in the *City Transportation Demand Management Plan 2017 Final Report*, transportation demand management (TDM) increases a transportation system’s efficiency by shifting trips from single-occupant vehicles (SOVs) to non-SOV modes or from peak to non-peak periods. TDM seeks to increase the universe of trips by expanding travel options, encouraging individuals to modify their travel behavior, and reducing the need for travel through efficient land uses. TDM programs often cost little but yield high impacts and are typically implemented by employers, public agencies, or public-private partnerships. The Oregon City TDM Plan provides a range of strategies to be implemented over time to improve the transportation system’s overall efficiency.

5.10 CONSTRUCTION TRAFFIC CONTROL

Traffic control in the public right-of-way is subject to a permit. Preparation of traffic control plans is based on project type, duration of work, and project characteristics and context. The Engineer of Record and/or City Project Manager must coordinate with the City Engineer to determine the need for traffic control plans.

The Engineer of Record and/or City Project Manager must submit a traffic control plan to be approved by the City Engineer before construction. *Clackamas County Roadway Standards*, Section 290, provides additional information on preparing traffic control plans.

Traffic control design in work zones must conform to the MUTCD and the ODOT Supplements to the MUTCD. Additional guidelines for preparing traffic control plans and identifying traffic control plan strategies are below:

A. ODOT *Sign Policy and Guidelines*

B. FHWA *Standard Highway Signs*

C. *Oregon Standard Specifications for Construction and Oregon Standard Drawings* TM800 series

D. *Oregon Temporary Traffic Control Handbook for Operations of Three Days or Less*

E. *Oregon Traffic Control Plans Design Manual*

5.10.1 Control of the Site

Requirements for control of the site include:

A. At no time shall flagging operations delay traffic for a period greater than 20 minutes.

B. Work and activity zones (construction, restoration, and erosion control) shall extend no more than 2,500 lineal feet at any one time unless otherwise approved.

C. Open trenches shall extend no more than 250 lineal feet at any one time unless otherwise approved.

D. No trenches are to be left unprotected between dusk and dawn.

E. Trenches shall conform to the technical requirements of Section 00405 of the Oregon Standard Specifications for Construction.

F. Trench plating shall be positively secured from movement and ramped with anti-skid coated plate ramps.

G. Roadway plates are only allowed on the road for a maximum of 7 days. Pavement patches must be completed in 7 days.

5.10.2 Temporary Pedestrian Accessible Route

If existing pedestrian access will be obstructed by construction, alteration, maintenance, or other temporary conditions, a continuous temporary pedestrian accessible route (TPAR) shall be provided consistent with the requirements of this section. TPARs shall conform to the requirements of Part 6 of the MUTCD and the most recent update of the Oregon Standard Specifications for Construction, Section 00220.02(b). The TPAR plan shall be included in the traffic control plans. The City Inspector will inspect the TPAR. If deficiencies are identified, the City Inspector will stop work until such deficiencies are corrected.

TPAR requirements include:

A. In work zones, do not block pedestrian access with vehicles or equipment parking, materials storage, or for any other reason except construction.

B. Keep the TPAR parallel to the disrupted pedestrian access route and be on the same side of the street where possible.

C. Do not route bicyclists into the TPAR. If it is necessary to divert bicyclists around the work, provision should be made for a separate bicyclist route.

D. If the work impacts the accessibility of pedestrian routes through or around the work zone, limit impacts to one corner of an intersection at a time.

E. Close sidewalks at a point where there is an alternate way to proceed. Provide signing and other traffic control devices directing pedestrians to an alternate pedestrian route.

F. The Applicant must inspect the on a regular basis to ensure it is safe and does not have gaps or surface displacements that create a hazard.

G. The TPAR shall meet the standards of a pedestrian access route as defined in PROWAG:

    1. Keep the minimum width to 48 inches. Provide a 60 x 60 inch passing space every 200 feet along the route.

    2. Keep the surface smooth and nonslip.

    3. Keep vertical clearance of at least 8 feet.

    4. Keep the cross slope at be no more than 2.0% perpendicular to the direction of pedestrian travel.

    5. Keep the grade less than or equal to the grade of the adjacent road.

    6. Provide a minimum turning space of 4 feet x 4 feet shall wherever it is necessary for pedestrians to turn.

    7. If it is necessary to cross a curb, the TPAR shall include a temporary ramp meeting standards for a curb ramp.

    8. If it is necessary for the TPAR to cross a driveway or construction access, provide truncated dome warning. If it is not possible to provide truncated dome warning, provide construction staff whenever construction vehicles are crossing the pedestrian access route.

    9. Provide nighttime lighting.

H. Provide and maintain pedestrian channelizing devices (PCD) through the period in which the permanent pedestrian access route is disrupted. Pedestrian channelizing devices intend to prevent people with disabilities from straying into the vehicular way or into an active construction area. Caution tape is not sufficient to guide people who are blind or have low vision. Use only PCDs that are on the approved ODOT Qualified Products List and are designed to be ADA compliant.

Provide pedestrian channelizing devices:

1. Between the TPAR and any adjacent construction site.
2. Between the TPAR and the vehicular way if the TPAR is diverted into the street.
3. Between the TPAR and any protruding objects, drop-offs, or other hazards to pedestrians.
4. At a curb ramp if the opposite curb ramp is temporarily and completely blocked and no adjacent alternate circulation path is provided.

I. When work briefly or intermittently blocks or restricts the use of a pedestrian route, and a temporary detour route is not practicable due to the short duration of the restriction, provide a temporary means of allowing pedestrian access through or around the work area. Means of providing temporary pedestrian accessibility may include but is not limited to temporarily suspending the work and making the pathway passable or using construction staff to guide pedestrians through or around the area. When a TPAR is created in the public right-of-way, both visual and audible warning shall be provided at both ends of the temporary pedestrian access.

J. When direction signing or warnings are provided, they should be located to minimize backtracking. Provide audible warnings for people who are blind or have low vision and include specific directions allowing them to find the desired path.

5.10.3 Temporary Road Closures

Temporary road closures are not for an Applicant's convenience or cost reduction. Proposed closures shall establish that a clear public safety and convenience benefit would result from a closure.

A. Road closures for construction require the approval of the City Engineer.

B. Projects should be evaluated for one-way flagging or other traffic control options prior to requesting a road closure. All other options must be exhausted before a road closure is reviewed for approval.

C. Temporary road closures on collectors and arterials are only allowed when there are other comparable streets (high-traffic streets) available for a detour.

D. The detour route shall be capable of safely and legally accommodating the detoured traffic.

E. With increasing Average Daily Traffic (ADT), functional classification, and closure duration, an Applicant's burden becomes greater in establishing the benefit of a proposed closure.

F. If a road closure is proposed, the following may be required:

1. Evidence that other methods of traffic control and/or temporary improvements are not feasible to keep the road open.
2. Time-of-day restrictions or extension of normal working hours and days.
3. Contract requirements of incentives/disincentives for completing/not completing a closure on time.

4. A public engagement plan.
5. Off-site improvements to meet the minimum safety of the detour route and/or to return the detour route to its original condition prior to the detour.

5.10.4 Impacts to Traffic Signals

A. In no case may flagging operations take place in conflict with the indications of an operating traffic signal.

B. No flagging operations may take place within 200 feet of an operating traffic signal without a custom traffic control plan subject to a permit.

C. Should traffic control requirements dictate the "turn-off" and/or "turn-on" of a traffic signal, the Applicant shall coordinate with the City Engineer at least two business days prior to turn-off and/or turn-on date.

5.10.5 Temporary Speed Reduction Process

For some projects, it may be necessary or advantageous to implement a temporary speed reduction through a work zone. The duration of the temporary speed zone reduction will vary based on the type and complexity of the work being done and how quickly the constraint or hazardous condition can be relieved or eliminated.

To obtain a temporary speed reduction in a work zone on a City street, the Engineer of Record and/or City Project Manager should complete the Work Zone Speed Reduction Request Form (Appendix B) and submit it to the City Engineer for review and approval.

A variety of circumstances can warrant a speed zone reduction, including:

A. Reducing the number of lanes for traffic.

B. Complex construction staging.

C. Temporary alignments, crossovers, or on-site diversions.

D. Nighttime paving operations on a high-speed, multilane facility.

E. Workers present for extended periods within 2 feet of travel lanes and not behind a barrier.

F. Lane widths (existing or due to construction) of less than 12 feet.

G. Horizontal curves with a safe speed of 10 mph or more lower than the posted speed.

H. Pavement edge drop-offs within 2 feet of the traveled way for more than ¼ mile.

5.10.6 Detour Routes

A traffic detour can be an effective traffic control measure within a traffic control plan. Detours for temporary road closures should follow the requirements outlined in the *Clackamas County Roadway Standards*, Section 290.5. When detours are considered, emergency services, solid waste disposal companies, and mail delivery must be notified.

The ODOT *Traffic Control Plan Design Manual* provides conditions for when a detour may be considered, including when:

A. The physical work area cannot support live traffic and construction activities concurrently.

B. The accelerated completion of a project is desired, and having uninterrupted use of the entire work site can facilitate a time-critical schedule.

C. Construction constraints (e.g., vehicle weight/size restrictions) require specific vehicle classes to be precluded from the work zone.

Routes designated as detours must be able to reasonably accommodate the detoured traffic. An overview of design considerations is below.

A. For signalized intersections along the detour route, consider adjusting signal timing while the detour is operating.

B. Detours that significantly impact unsignalized intersections may require temporary signals.

C. If a single roadway cannot manage the capacity of the detoured traffic, undesignated alternate routes can be offered to disperse traffic.

D. Extended distance detours may inadvertently divert traffic and impact travel time and facility wear and tear on alternate routes.

E. Detours must be designated using appropriate traffic control devices per MUTCD requirements and guidance.

F. Changeable message signs may help supplement fixed signs.

6.0 PAVEMENT DESIGN

Chapter 6 provides detailed City standards for pavement design.

6.1 GENERAL REQUIREMENTS

Pavement materials and construction work must comply with the current *Oregon Standard Specifications for Construction* unless stated herein. Abbreviations and terms used within this section are as defined or used in the *ODOT Standard Specifications for Construction* unless otherwise noted. Additional general requirements are described below.

A. Pavement designs must be developed and documented by an engineering report prepared and stamped by an engineer experienced in pavement design (Refer to Section 1.1.1). The report must include specific pavement design recommendations for materials and construction. Additionally, the report must include sufficient design documentation regarding site conditions, design assumptions, and design parameters to allow for independent peer review of the design recommendations. The engineering report must address considerations for year-round construction, including recommendations for both summer and winter construction.

B. If a pavement design is not provided, default pavement sections identified in Section 6.8 must be used.

C. Pavement materials for roadway construction must be recommended by the Engineer of Record and/or the City Project Manager. The report must describe the pavement type and reasoning behind the selected materials.

D. Street functional classifications specific to Oregon City pavements include arterials (major and minor), collectors, local commercial and industrial, and residential. Additional paved surfaces include alleyways, shared-use paths, and private streets.

E. The City Engineer must approve the use of pervious pavements, and the Engineer of Record and/or City Project Manager must include a stormwater analysis report. Specific pervious pavement design considerations are not included these *Standards.* If approved, the pavement report must include construction considerations, material properties and pavement thickness design calculations.

F. The City Engineer must approve all proposed alternative materials. Benefit analysis and reasoning (e.g., noise) is to be included in the pavement design report.

G. All asphalt pavement should be placed during temperatures that are 40 degrees Fahrenheit and rising.

6.2 DESIGN REQUIREMENTS

Design standards for the following categories can be found in the publications below.

A. Asphalt concrete pavement (ACP): AASHTO *Guide for Design of Pavement Structures* (AASHTO Pavement Guide) and the design guidelines of the latest ODOT *Pavement Design Guide* (ODOT Pavement Guide).

B. **Portland cement concrete (PCC)**: 1998 *Supplement for Rigid Pavement Design* (AASHTO Pavement Supplement) or the StreetPave™ design software by the American Concrete Pavement Association (ACPA).

C. **Overall:** Latest ODOT *Pavement Guide* for general guidelines and inputs, unless specifically described herein.

6.2.1 Pavement Design Period

The pavement design period is for major widening (e.g., adding travel lanes), adding new pavement, or rehabilitating pavement. For minor widening (e.g., bicycle lanes), pavement thickness should match adjacent pavement. Table 6-1 provides a summary of pavement design periods.

Table 6-1: Pavement Design Period

Project Type	Design Period
Newly-constructed streets (including ½ streets and reconstructed streets)	30 years for flexible pavement 40 years for rigid pavement
Roundabouts	40 years for rigid pavement
Rehabilitation	Based on location and available funding
Major widening	20 years

6.2.2 Site Investigation

A. **Explorations:** Conduct sufficient soil and/or existing pavement explorations (at least 1 per 500 feet of roadway and at least 2 total) to visually classify the soils within a minimum of 3 feet below the planned subgrade surface. Conduct laboratory testing on samples of the subgrade soils, including determination of moisture content and soil classification tests (Atterberg Limits, gradation, etc.).

B. The Engineer of Record and/or City Project Manager must evaluate the subsurface exploration logs and the laboratory soils test data to determine if subgrade compaction is feasible, including a consideration of moisture conditions during construction and whether the compacted subgrade will support construction activities and traffic. If subgrade compaction is deemed feasible, the pavement section must be designed based on the subgrade support values determined from the laboratory tests of compacted subgrade. Compaction of the subgrade must be accomplished following the procedures and compaction criteria given in Oregon Standard Specifications for Construction 00330.43, including deflection testing according to ODOT Standard Drawing TM158.

    1. If subgrade compaction is not deemed feasible, the subgrade must be designed based on the in-situ subgrade capacity as defined by falling weight deflectometer (FWD), resilient modulus testing of in situ samples, or dynamic cone penetrometer (DCP) testing.

    2. The engineering report must include recommendations regarding the need for subgrade separation geotextile.

    3. The engineering report must include recommendations for increased subgrade stabilization and/or an additional aggregate base for winter construction. Options for the protection of native subgrade should include haul roads and/or staging plans to reduce vehicle-induced subgrade loads.

4. The Engineer of Record and/or City Project Manager should consult with the City Engineering Group regarding the potential for old market roads, underlying PCC, or historical data that may affect pavement rehabilitation performance.

C. **Subgrade support inputs:** Subgrade support values for the design of flexible pavement (resilient modulus) and rigid pavement (modulus of subgrade reaction or k-value) must be estimated by one or more of the following methods:

1. Estimate in situ subgrade support values by back calculation of FWD deflections measured on paved or aggregate surfaced areas within the project limits. FWD testing must be conducted following the American Society for Testing and Materials (ASTM) D 4694 and D 4695 with a deflectometer that has been calibrated within 12 months preceding the testing. Back calculate the elastic modulus of the subgrade soil for flexible pavement design per the back-calculation procedures described in the AASHTO *Pavement Guide* or other procedures meeting the guidelines of ASTM D 5858. Use the modulus correction factors given in the ODOT *Pavement Guide* to convert back-calculated elastic moduli into equivalent saturated laboratory resilient moduli. Back calculate the dynamic k-value of the subgrade for rigid pavement design per the back-calculation procedures described in the AASHTO Pavement Supplement and correct the dynamic k-value to static k-value using a factor of 0.5.

2. Estimate in situ subgrade support values by measuring subgrade soil penetration resistance using the DCP per ASTM D 6951. Estimate the subgrade resilient modulus for flexible pavement design from DCP Index (mm/blow) using the correlation given in the ODOT *Pavement Guide*. Use the modulus correction factors given in the ODOT *Pavement Guide* to convert DCP-determined resilient moduli into equivalent saturated laboratory-resilient moduli. Estimate the subgrade static k-value for rigid pavement design from DCP Penetration Rate (inches/blow) using the correlation given in the AASHTO Pavement Supplement.

3. Determine in situ resilient modulus by laboratory testing of push tube samples of subgrade soil. Conduct the resilient modulus testing in general accordance with AASHTO Pavement Supplement T-307. Evaluate resilient modulus at a deviator stress of 6 pounds per square inch (psi) at a confining pressure of 2 psi.

4. Determine the resilient modulus of compacted subgrade by testing laboratory compacted subgrade soil. Compact the subgrade sample to 95% of standard Proctor maximum dry density at a moisture content of 1-2 percentage points above standard Proctor optimum moisture content. Conduct the resilient modulus testing using the ODOT testing protocol. Evaluate resilient modulus at a deviator stress of 6 psi at a confining pressure of 2 psi.

5. For rigid pavements, estimate the k-value of compacted subgrade by California Bearing Ratio (CBR) testing of a laboratory compacted subgrade soil. Compact the subgrade sample to 95% of standard Proctor maximum dry density at a moisture content of 1-2 percentage points above standard Proctor optimum moisture content. Conduct the CBR testing per ASTM D 1883 using surcharge weight equivalent to the proposed pavement section. Estimate the static k-value from the CBR value using the correlation given in the AASHTO Pavement Supplement.

6. In place of testing to establish subgrade support values, presumptive design values of 3,500 psi for resilient modulus and 50 pci for k-value may be used.

6.3 TRAFFIC LOADING ANALYSIS

A. The pavement design traffic loading is the total number of 18-kip equivalent single axle load (ESAL) repetitions that the pavement is expected to experience during the design period. The pavement design report must include a detailed description of design traffic loading and calculation steps used to generate the design ESAL. Traffic data or traffic studies used for generating pavement design ESAL must be no more than 4 years old.

B. For rehabilitation and widening, ESAL is to be determined by daily traffic volumes, heavy vehicle percentage, traffic growth, and traffic classification counts with the distribution of heavy vehicle volumes according to the FHWA axle classifications and projected growth rate in heavy vehicle volumes during the design period. For local residential, the classification counts can be assumed if a valid basis for assumptions is presented in the pavement report. Widening design must consider the potential for new traffic volumes and additional lanes.

C. For new roads, the Engineer of Record and/or City Project Manager must complete a traffic study that identifies the distribution of heavy vehicle volumes, traffic growth, and the expected types of trucks and truck frequencies. For specific heavy truck generation sites, a detailed account of trucks, truck types, and per-truck ESAL calculations are to be provided in the pavement design report.

D. Daily heavy vehicle volumes must be multiplied by the conversion factors for FHWA heavy vehicle classes shown in the ODOT *Pavement Guide*, with the exception that buses should be broken down into school buses, two-axle transit buses, and articulated buses. Specific site traffic should have a site-specific per-truck ESAL if appropriate. (See Table 6-2).

E. The presumptive traffic loadings shown in Table 6-3 may be used as design values instead of a detailed traffic analysis. Lower assumed values than those shown in Table 6-3 may be used for rehabilitation if the reasoning is provided in the pavement design report and the values are accepted by the City Engineer.

F. The traffic loading for circulatory lanes within roundabouts must be calculated as two times the highest traffic loading on the approach lanes to account for the combined loading from the approaches. An alternative turning movement analysis can be conducted to calculate the roundabout quadrant with the highest traffic.

G. If using StreetPave™-based rigid design, load spectrum traffic analysis is required. The Engineer of Record and/or City Project Manager should use site-specific total truck traffic, with the default typical traffic category corresponding to the road type. For transit bus routes, default to the major arterial traffic category.

H. In no case shall the design ESAL be less than 40,000 for new or reconstructed pavement.

Table 6-2: Bus ESAL Conversion Factors

Bus Type	Daily Bus Volume to Annual ESAL Repetitions Conversion Factors	
	Flexible Pavement	Rigid Pavement
Weight-restricted buses, school buses	246	269
2-axle transit buses	780	1170
Articulated transit buses	1550	2320

Table 6-3: Presumptive Traffic Loadings

Road Type	Flexible Pavement 30-Year ESAL Repetitions	Rigid Pavement 40-Year ESAL Repetitions
Local Residential[1]	40,000	70,000
Local Commercial/Industrial	1,200,000	2,100,000
Collector	1,000,000	1,800,000
Arterial	2,000,000	3,500,000

[1] Use Commercial/Industrial Functional Classification traffic loadings if street will be used by a TriMet bus line or similar shuttle buses.

6.4 FLEXIBLE PAVEMENT THICKNESS DESIGN CRITERIA

Use the design parameter values in Table 6-4 for flexible pavement design.

Table 6-4: Flexible Pavement Design Parameter Values

Parameter	Design Value
Design Reliability Level	90% Arterial, Collector, Local Commercial/Industrial & Bus Routes; 80% Local Residential & Neighborhood Routes
Initial Serviceability, Po	4.2
Terminal Serviceability, Pt	2.5
Standard Deviation	0.49
New Asphalt Concrete Layer Coefficient	0.42
New Aggregate Base Layer Coefficient	0.10
New Aggregate Base Resilient Modulus, psi	20,000
New Aggregate Base Drainage Coefficient	1.0
New Aggregate Subbase Layer Coefficient	0.08
New Aggregate Subbase Resilient Modulus, psi	11,200
New Aggregate Subbase Drainage Coefficient	1.0

A. The pavement section must be designed using the Layered Design Analysis method described in Part II of the AASHTO *Pavement Guide*. The calculated pavement thickness should be rounded up to the nearest 0.5 inch.

B. The minimum roadway asphalt concrete (AC) section thickness is 4 inches, consisting of a 2-inch-thick base lift and 2-inch-thick wearing course. The minimum AC section for shared-use paths and alleys is 3 inches placed in a single lift.

C. The minimum thickness of the aggregate base is 6 inches. A geotechnical engineer should provide analysis of rock sections' suitability to support construction traffic. Analysis should consider the construction time of year. A design acceptance may be provided for pavement in areas with shallow basalt.

D. Full-depth reclamation or amended subbase with cement can be included if laboratory testing and design are provided in the engineering report. The layer coefficient must be 0.16, where at least 50% (by weight) of the existing material to be treated is granular. Otherwise, the layer coefficient must be considered equal to the aggregate subbase (0.08).

E. The asphalt concrete pavement (ACP) should be ½- or ¾-inch dense, according to City modifications to Oregon Standard Specifications for Construction 00744. A request can be made for a lower nominal maximum aggregate size for thin lift paving if accepted by the City Engineer.

F. Minimum and maximum lift thicknesses are 2 and 3 inches, respectively, for ½- or ¾-inch-dense ACP.

G. Compact asphalt concrete to a minimum of 92% of moving average maximum density (MAMD) all lifts.

H. Default binder for ACP is PG 64-22 for local, commercial, and collectors and PG 70-22 for arterials; however, the binder grade should be adjusted depending on aggregate gradation, traffic levels, and the amount of recycled asphalt material. The use of PG 64-22 binder for base paving lifts below the top 4 inches on arterials should be considered. Binder grade discussion and reasoning must be submitted in the engineering report.

I. Rigid pavement with impact slabs is required for public transit bus stops. Flexible pavement at bus stops will only be considered with prior City Engineer approval and will require a separate pavement design to address bus loading.

J. Impact slabs are required for all transitions from flexible pavement to rigid pavement, including rail crossings.

K. For newly-constructed residential streets, pavement design and construction should include all asphalt layers placed before building construction. If staged flexible pavement (first lift placed, then building construction, then final lift) is preferred, the pavement design must take construction vehicles, time of year, and drainage into account. The staging of street construction in this manner must be approved by the City Engineer.

L. Tack coat must be used for all paving lifts unless paving occurs on same day.

6.5 RIGID PAVEMENT THICKNESS DESIGN CRITERIA

Refer to Table 6-5, Table 6-6, and the following criteria for rigid pavement thickness design.

A. Rigid pavement cannot be used for half-street or widening design when adjacent to flexible pavement.

B. Rigid pavement must be used for widening design when adjacent to rigid pavement. Joints must either line up, or isolation joints must be used. No-load transfer should be used for widening.

C. Rigid design is to be completed according to the AASHTO Pavement Supplement or StreetPave™ system. Other design methodology can be used only if accepted by the City Engineer.

D. The minimum portland cement concrete slab thickness is 6 inches—except for streets with transit or shuttle bus traffic, for which the minimum slab thickness is 8 inches.

E. The minimum thickness of the aggregate base is 4 inches. A geotechnical engineer analyze the aggregate base suitability to support construction traffic and should consider the construction time of year.

F. The slab thickness design must consider the slab edge support condition as defined within the AASHTO Pavement Supplement and/or StreetPave™.

G. Requirements under Oregon Standard Specifications for Construction 00756.60 must be met before opening to traffic.

Table 6-5: Rigid Pavement Design Parameter Values (AASHTO Pavement Supplement)

Parameter	Design Value
Design Reliability Level	90% arterial, collector, commercial, and bus routes. 80% local residential and neighborhood routes.
Initial Serviceability, Po	4.5
Terminal Serviceability, Pt	2.5
Standard Deviation	0.40
28-day Flexural Strength, psi	600
Modulus of Elasticity of Concrete, psi	3,600,000
Modulus of Elasticity of Base Material, psi	Median value from Table 14 of AASHTO Supplement for the base type.
Drainage Coefficient for Faulting Analysis	0.80
Poisson's Ratio of PCC	0.15
Edge Support Adjustment Factor	As recommended in AASHTO Supplement for the type of edge support.
Friction Coefficient between Slab and Base	Median value from Table 14 of AASHTO Supplement for the base type.
Mean Annual Wind Speed, mph	7.9
Mean Annual Temperature, °F	53.6
Mean Annual Precipitation, inches	36.3
Moisture Gradient a Construction Temperature Differential in Slab	1 °F per inch of slab thickness.
Mean Annual Freezing Index	33-degree (F) days
Annual Temperature Range, °F	46.6
Number of Days with Maximum Temperature above 90 °F	10.8

Table 6-6: Rigid Pavement Design Parameter Values (StreetPave™)

Parameter	Design Value
Design Reliability Level	90% arterial, collector, commercial, and bus routes 80% local residential and neighborhood routes
Terminal Serviceability	2.5
28-day Flexural Strength, psi	600
Modulus of Elasticity of Concrete, psi	3,600,000
Slabs Cracked	5%
Drainage Coefficient for Faulting Analysis	0.80
Poisson's Ratio of PCC	0.15
Edge Support	Default no edge support.
Macro Fibers in Concrete	Default to no. maximum of 15% residual if approved by City.

6.6 RIGID PAVEMENT JOINTING DESIGN CRITERIA

A. For rigid pavements, the pavement design report must provide maximum joint spacing. A jointing plan must be included in the project plans and must show the construction joints and transverse/longitudinal joints in the concrete pavement to control cracking. The jointing plan must show, at a minimum, the following: manholes, valve boxes, inlets, joint layouts, dowels, tie bars, and other required reinforcement and joint details (including sawing depths).

B. The joint layout must be designed per American Concrete Pavement Association (ACPA) recommendations and the criteria described herein. Projects must avoid or minimize joints that intersect another joint or the pavement edge at an angle of fewer than 60 degrees, interior corners (L-shaped slabs), slabs less than 1 foot wide, and odd shapes (keep slabs rectangular, trapezoidal, or triangular). Isolation joints shall box out utility fixtures and isolate them from the main slab. Fixtures must be located so the joints are centered on the box-outs or coincide with the isolation joints around the box-outs.

C. Gutter joints must align with the transverse joints on the adjoining slab unless an isolation joint is placed between the gutter and the slab. Design with isolation joints can allow offset of transverse to gutter joints; however, the pavement design must take edge conditions into account.

D. Longitudinal joints must coincide with lane lines. Note that on streets with an odd number of lanes, this will require an offset crown. Spacing between longitudinal joints cannot exceed 15 feet or 24 × slab thickness on unbound base or 21 × slab thickness on stabilized base—whichever is less.

E. Transverse contraction joints must be spaced at relatively equal intervals and be close to the same spacing as the longitudinal joints so that the panels are relatively square. The ratio of the maximum to minimum slab dimensions (aspect ratio) formed by joints must not exceed 1.25.

   Spacing between transverse joints must not exceed 15 feet or 24 × slab thickness on unbound base or 21 × slab thickness on stabilized base—whichever is less. If the aspect ratio cannot be met, the slabs must be reinforced with the #5 bar at 12 inches on centers.

F. Transverse joints (sawed or construction) in plain concrete pavement slabs 7 inches thick or greater must be dowelled. All joints within intersections must be dowelled when dowels are needed on the transverse joints in one of the approach lanes. Plate dowels are allowed. Dowel installation must be per Oregon Standard Specifications for Construction 00756.43(a).

G. All joints must be sealed with joint sealant listed on the ODOT Qualified Products List (QPL) and placed in a joint reservoir sized in accordance with the recommendations of the joint sealant manufacturer. (Typically, the reservoir width should be twice the sealant depth for silicone sealant). The sealant must be supported by a backer rod of the size and material recommended by the joint sealant manufacturer. The top of the sealant must be recessed below the slab surface by 0.125–0.375 inch.

6.7 STRUCTURAL REHABILITATION DESIGN

A. Pavement coring performed at representative locations shall be used to determine the thickness and composition of the pavement materials and evaluate the cracking depth, investigate the cracking mode (top-down or bottom-up), investigate for moisture-induced damage (asphalt stripping damage), determine delamination within the pavement. Areas of moderate-to-severe distress that are structural must be identified. Additional cores should be obtained if there are multiple travel lanes in one direction.

B. Field investigation with falling weight deflectometer (FWD) testing of existing industrial, collector, and arterial pavement is recommended to determine the structural condition and remaining structural life.

   1. FWD testing will be conducted following ASTM D 4694 and D 4695.

   2. The FWD test data must be analyzed to delineate analysis units representing segments having distinctly different structural characteristics.

   3. The in situ resilient modulus of the subgrade and the effective structural number of the existing pavement structure must be estimated from back-calculation analysis of the FWD test data using the back-calculation analysis procedure described in the AASHTO *Pavement Guide* or other procedures meeting the guidelines of ASTM D 5858.

C. The investigation must also include a visual survey of pavement distress. A distress survey must identify the pavement condition concerning rehabilitation needs. Areas of moderate-to-severe distress that are structural must be identified.

D. If the FWD test is not used, resilient modulus should be determined by one of the options listed under the “Subgrade Supports Inputs” section of these *Standards*. Layer coefficients for surfacing should be based on a visual condition assessment and the values listed in Table 5.2 of the AASHTO *Pavement Guide*. Layer coefficients for the base should be based on dynamic cone penetrometer (DCP) testing in conjunction with Figure 2.7 in the AASHTO Pavement Guide.

E. Design for structural rehabilitation of existing pavement must be accomplished using the procedures described in Part III of the AASHTO *Pavement Guide* and the rehabilitation design guidelines in the ODOT *Pavement Guide*. Rehabilitation recommendations must consider measures for mitigation of reflective cracking, layer delamination, and stripping.

F. Rehabilitation design must include detailed information regarding pavement repair through dig-out and variable grind depths. Design must also include design section as well as location and approximate quantities.

6.8 DEFAULT PAVEMENT SECTIONS

The default pavement sections are based on conservative design criteria, including anticipated traffic and construction vehicle loading under poor soil conditions. These assumptions may not be representative of typical conditions for many locations. For local roads, use the commercial/industrial pavement section if a transit bus line or similar shuttle buses will use the street. Roundabout design must be site specific and cannot use the below default values.

Materials, construction practices, and general information from Sections 6.4 (Flexible Pavement) and 6.5 (Rigid Pavement) should be followed.

Table 6-7 provides default asphalt concrete pavement section information. Table 6-8 provides information for standard rigid pavement section.

Table 6-7: Default Asphalt Concrete (AC) Pavement Section

Functional Classification	Thickness				AC Mix Design Level[6]
	AC Wearing Course[1]	AC Base Course[2]	¾-inch – 0 Leveling Aggregate	Aggregate Base Course[3,4,5]	
Arterial	2”	7”	2	14”	3
Collector	2”	6”	2	14”	2
Local Commercial/Industrial	2”	6”	2	12”	3
Local Residential	2”	2”	2	10”	2
Alley	3”	N/A	2	8”	2
Shared-Use Path	3”	N/A	6” of ¾-inch – 0 Aggregate		2

[1]Use ½-inch-dense ACP. Place in one lift. Conform to mix design levels as shown in the table. Use PG 70-22 binder for arterial and PG 64-22 binder otherwise.

[2] Use ½-inch-dense ACP. Place in lift thicknesses from 2 to 3 inches. Conform to mix design levels as shown in the table. Use PG 70-22 binder for asphalt concrete surfaced pavement for top 4 inches on arterials and PG 64-22 binder elsewise.

[3] Use ¾-inch-0 or 1 1/2-inch-0 dense graded base aggregate meeting the requirements of Oregon Standard Specifications for Construction 00641.

[4] Aggregate base thickness may need to be increased for constructability in areas of soft or wet subgrade.

[5] Subgrade geotextile is required below the aggregate base for silt and clay subgrade types.

[6] Collector may require Level 3 for roads identified as transit or trucking routes and with ESAL 1,000,000 or greater. Arterial may require mix design level 4 for ESAL in excess of 10,000,000.

[7] A pavement design to accommodate anticipated traffic loadings and existing soil conditions shall be submitted to the city engineer for approval. ACP shall be compacted to 92% max density (rice density) per AASHTO T-209.

[8] Subgrade and base rock shall be compacted to 95% relative density per AASHTO T— 180.

Table 6-8: Standard Rigid Pavement Section

Functional Classification	Thickness		
	PCC [1, 2]	AC Base Course[3]	Aggregate Base Course[4,5,6]
Arterial	9”	4”	8”
Collector	8”	4”	8”
Local Industrial/Commercial	8”	4”	8”
Local Residential	8”	N/A	6”

[1] Use Class 4000, 1.5-inch paving concrete.

[2] Use epoxy-coated 18-inch-long smooth circular stainless steel dowel bars at 12-inch spacing along all transverse joints. Bars should be coated with a bond breaker to be approved by the City Engineer. For 7- to 8-inch-thick PCC slab, use 1-inch diameter bars, for 9- and 10-inch-thick PCC slab, use 1.25-inch diameter bars. For slabs less than 7 inches thick, joints should be un-doweled.

[3] Refer to Section 6.6 for further jointing criteria.

[4] Use ½-inch-dense ACP. Place in lift thicknesses from 2 to 3 inches. Conform to mix design levels as shown in the table. Use PG 64-22 binder for asphalt concrete.

[5] Use ¾-inch-0 or 1 1/2-inch-0-dense graded base aggregate meeting the requirements of Oregon Standard Specifications for Construction 00641.

[6] Aggregate base thickness may need to be increased to 12 inches or more for constructability in areas of soft or wet subgrade.

[7] Subgrade geotextile is required below the aggregate base for silt and clay subgrade types.

7.0 STORMWATER

Chapter 7 provides an overview of City stormwater standards and primarily refers to the City *Stormwater and Grading Design Standards* for detailed requirements.

7.1 GENERAL DESIGN REQUIREMENTS

Stormwater design must include provisions to adequately control runoff development as defined by the City. The design must ensure the future extension of the stormwater drainage system to the entire drainage basin in conformance with the adopted City Stormwater Master Plans as well as the *Stormwater and Grading Design Standards*.

Design requirements include the following:

A. The approved point of disposal for all stormwater must be discharged at the existing natural drainage outlet or outlets. Runoff is not allowed to flow over adjacent public or private property at a rate, volume, or location materially different from that which existed before development occurred.

B. The peak runoff from all applicable designs must not be more than what existed before development. Retention and/or detention facilities are required where necessary to meet this requirement. Additional flow control requirements, as stated in the *Stormwater and Grading Design Standards* and adopted Stormwater Master Plan, must also be met as applicable.

C. Vegetation must be established on areas disturbed or on areas of construction, as necessary, to minimize erosion per the City's *Stormwater and Grading Design Standards*.

D. Stormwater facilities must control the discharge of pollutants according to the City's *Stormwater and Grading Design Standards*.

E. All stormwater drainage system designs must make adequate provisions for collecting all stormwater runoff. The system must be able to accommodate all runoff from upstream tributary areas, and the amount of runoff to be accommodated will be based on the ultimate development of all upstream tributary areas.

F. Swale breaks must be provided in stormwater planters around light poles.

G. For information on drainage curbs, refer to ODOT Specifications and ODOT Standard Drawings.

H. Green street infrastructure is encouraged when applicable to manage stormwater, treat runoff to reduce pollution and infiltrate water into the ground, and limit how much stormwater and pollutants eventually make their way into vulnerable natural waterways.

7.2 MINIMUM DESIGN CRITERIA

Refer to the *Stormwater and Grading Design Standards* for the minimum stormwater design criteria.

7.3 ALIGNMENT AND COVER

Refer to the *Stormwater and Grading Design Standards* for standards on alignment and cover.

7.4 PIPE MATERIAL AND SIZE

Pipe material and size must meet the requirements in the *Stormwater and Grading Design Standards.*

7.5 STRUCTURES

Refer to the *Stormwater and Grading Design Standards* for requirements for stormwater structures.

7.6 CULVERTS

Water crossing structures on all creeks and tributaries must not impede or eliminate a native fish species' access to habitat or ability to migrate. In general, projects should use bridge crossings rather than culverts wherever possible. If culverts are used, install slab, arch, or box type culverts, preferably using bottomless designs that more closely mimic stream bottom habitat. Proposed culvert crossings, regardless of tributary size or whether they are intermittent or perennial, must conform to Oregon Department of Fish & Wildlife and National Marine Fisheries Service's regulations and stream crossing guidelines. In addition to designing stream crossings for fish passage, culverts should include shelves and other design features to facilitate terrestrial wildlife passage.

Culverts within roadside ditches not deemed jurisdictional waterways and 18 inches in diameter or larger must have riprap installed at the inlets to protect from erosion. All riprap must be lined with drainage geotextile. Riprap for culvert outlets must be in accordance with the *Stormwater and Grading Design Standards*.

Cross culverts require headwalls in accordance with the *Stormwater and Grading Design Standards*.

Additional requirements may apply to meet State and Federal permitting requirements, which depend on the type of permit (Refer to Section 2.2).

7.6.1 Inlet and Outlet Control Analysis

The headwater depth for pipes under inlet or outlet control must be determined using the nomographs contained in the ODOT *Hydraulics Manual*.

7.6.2 Headwalls and Endwalls

Pipe headwalls, endwalls, or other approved end protection are required (1) where pipe material other than concrete or ductile iron is exposed in the design of an outlet or inlet pipe; (2) where required to provide slope stability; or (3) if properly-sized riprap cannot provide sufficient energy dissipation. Headwalls and endwalls must meet the requirements in the *Stormwater and Grading Design Standards*. In addition, the locations of the headwalls and endwalls relative to the edge of travel should be evaluated to meet roadside clearance (See Section 3.6).

7.7 CONVEYANCE SYSTEMS

Conveyance systems must be designed according to the *Stormwater and Grading Design Standards*. If a project uses an existing, undersized storm conveyance system, there must be a 1-foot minimum freeboard between the hydraulic grade line and the top of the structure or finish grade above pipe for the conveyance design storm post-development peak rate of runoff.

7.8 STORMWATER FLOW CONTROL

Stormwater flow control must comply with the *Stormwater and Grading Design Standards*.

7.9 STORMWATER QUALITY TREATMENT

Stormwater quality treatment must comply with the *Stormwater and Grading Design Standards*.

7.10 EROSION PREVENTION AND SEDIMENT CONTROL

Erosion prevention and sediment control must comply with the *Stormwater and Grading Design Standards*.

8.0 UTILITIES

Chapter 8 provides information on public and private utilities and the requirements for each type.

8.1 PUBLIC-OWNED UTILITIES

A. Public-owned facilities include the sanitary sewer, storm drainage, and water distribution system.

B. Refer to the *Sanitary Sewer Design Standards* and *Sewer Pump Station & Force Main Design Standards* for detailed design information and to Std. Dwg. OC513 for utility line placement.

C. Refer to the *Water Distribution System Design Standards* for detailed design information and to Std. Dwg. OC513 for utility line placement.

D. Refer to the *Stormwater and Grading Design Standards* for detailed design information and to Std. Dwg. OC513 for utility line placement.

E. Utilities must not be located under the curb or on ADA ramps; refer to Std. Dwg. OC513 for utility line placement.

8.2 PRIVATE UTILITIES IN PUBLIC RIGHTS-OF-WAY

A. Existing Facilities

1. All private utility construction should adhere to OCMC 13.34 Utility Facilities in Public Rights-of-Way and established City franchises.
2. Private utility systems shall not impede public infrastructure. All facilities shall abide by National Electric Safety Code, the ADA, and the locations outlined below.
    a. Utility facilities shall be placed in the public utility easement. The City Engineer must approve locations outside of easements.
    b. No utility shall cause a safety hazard in City right-of-way (ROW), including crash hazards, ADA non-compliance, and sight distance issues.
    c. Support structures shall be used jointly in City ROW; no double pole locations are allowed.

B. New Facilities

1. New facilities refer to new installations and relocation of existing utilities.
2. All new development installations should adhere to OCMC Chapter 16.12.095.
    a. Poles must be relocated to the abutting development property line.
3. All new utilities shall be placed in a public utility easement (PUE) unless approved by the City Engineer.

All utilities shall abide by Oregon State statutes. The use of City right-of-way is subject to national joint-use notification regulations and Oregon joint-use association requirements.

8.3 PUBLIC UTILITY EASEMENTS

8.3.1 Public Utility Easement

The minimum width for a public utility easement (PUE) must be 10 feet or 5 feet, as shown in Std. Dwg. OC513 and OCMC 16.12.085 or as approved by the City Engineer. The PUE shall be located along all property lines adjacent to public rights-of-way. The City may require a larger PUE in commercial and industrial areas and where right-of-way widths are constrained. See Std. Dwg. OC513 for easement grading requirements.

8.3.2 City-Owned Easements

A. Public water lines shall be located in the public right-of-way. A public water line may only be located on private property upon approval and at the sole discretion of the City Engineer. A public water line on private property shall be centered within a permanent water facilities easement granted to the City. The easement shall have a minimum width of 15 feet along its entire length when placed in a roadway, parking area, or another hardscaped surface. The easement shall have a minimum width of 20 feet in unimproved or landscaped areas where vehicular access is not normally available. Table 8-1 provides minimum easement widths consistent with the City *Sanitary Sewer Design Standards* and City *Water Distribution System Design Standards*.

Table 8-1: Minimum Easement Widths

Easement Type	Width (ft)
Public Utility Easement (PUE)	10'/5'
Public Water Easement (paved surface)	15'
Public Water Easement (un-paved surface)	20'
Public Sewer or Storm Easement (paved surface)	15'
Public Sewer or Storm Easement (un-paved surface)	20'
Public Sewer Easement (15-inch diameter and greater and/or 15 ft sewer depth and greater)	20'
Shared (Parallel) Public Sewer Easement	25'
Access and Maintenance Easement	20'

B. Public sanitary sewer lines shall be located in the public right-of-way. A public sanitary sewer line may only be located on private property upon approval and at the sole discretion of the City Engineer. A public sanitary sewer line on private property shall be centered within a permanent sanitary sewer easement granted to the City.

C. Public storm and sanitary sewer located on private property shall be located within a permanent public storm and/or sanitary sewer easement granted to the City, with a minimum width of 15 feet along its entire length. Parallel public storm and sanitary sewer sharing an easement require the easement width to be increased to a minimum of 25 feet. Shared easements require City Engineer approval.

D. The required width of an easement may be greater than the minimum requirement based on the surrounding conditions and property line configurations. There may be additional restrictions on the setback of structures near an easement to comply with building codes.

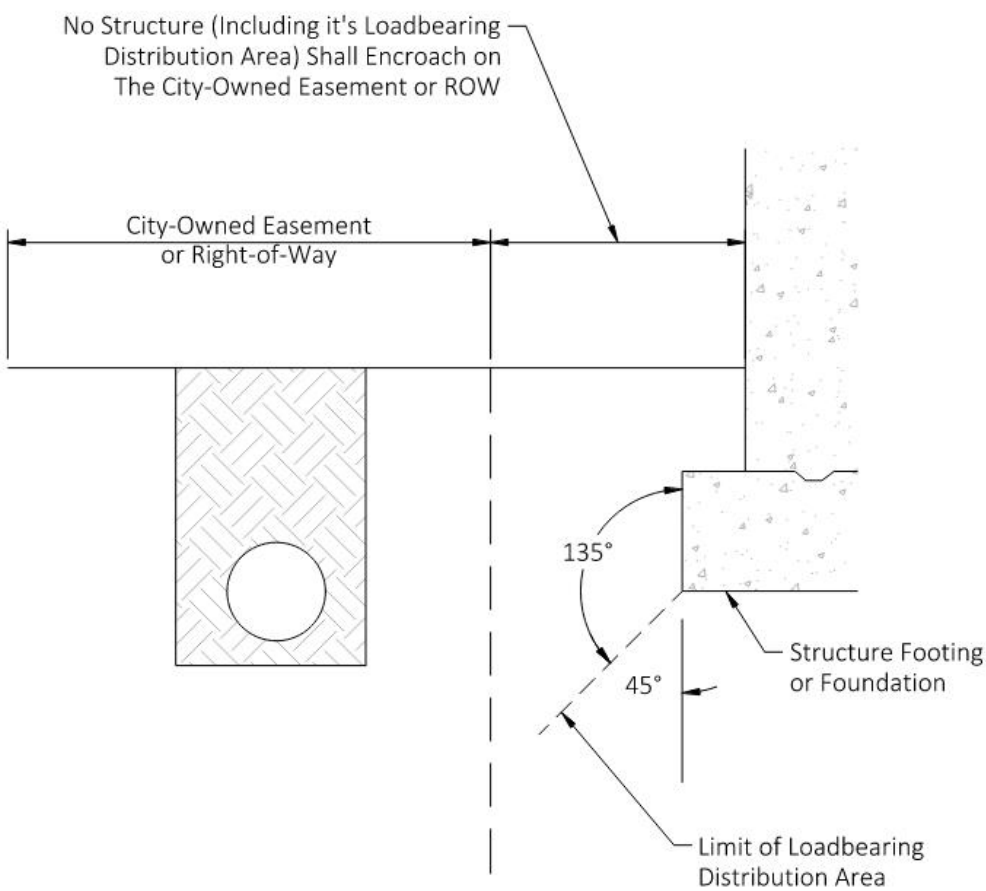
E. A 20-foot-wide permanent access and maintenance easement to benefit the City may be required in instances where City-owned infrastructure is inaccessible by way of the permanent easement. The access and maintenance easement shall be along a route that the City's maintenance vehicles can access.

F. Encroachments

1. There shall be no encroachment within a City-owned easement by a privately-owned structure, building, building overhang, retaining wall, monument sign, or any other object (including a structure's loadbearing distribution area as defined in Figure 8-1) that would adversely affect the City's ability to maintain public utilities.

2. There shall be no parallel encroachment within a City-owned right-of-way or easement (including a PUE) by a private utility facility or structure (including a structure's loadbearing distribution area as defined in Figure 8-1) without prior written approval by the City. Private utilities shall cross City-owned easements at right angles. Private utility facilities and structures shall not be placed within the pipe zone. The City will not approve any encroachment that would adversely affect the City's ability to maintain public utilities.

Figure 8-1: Loadbearing Distribution Area



G. Easement forms are subject to the approval of the City before recording.

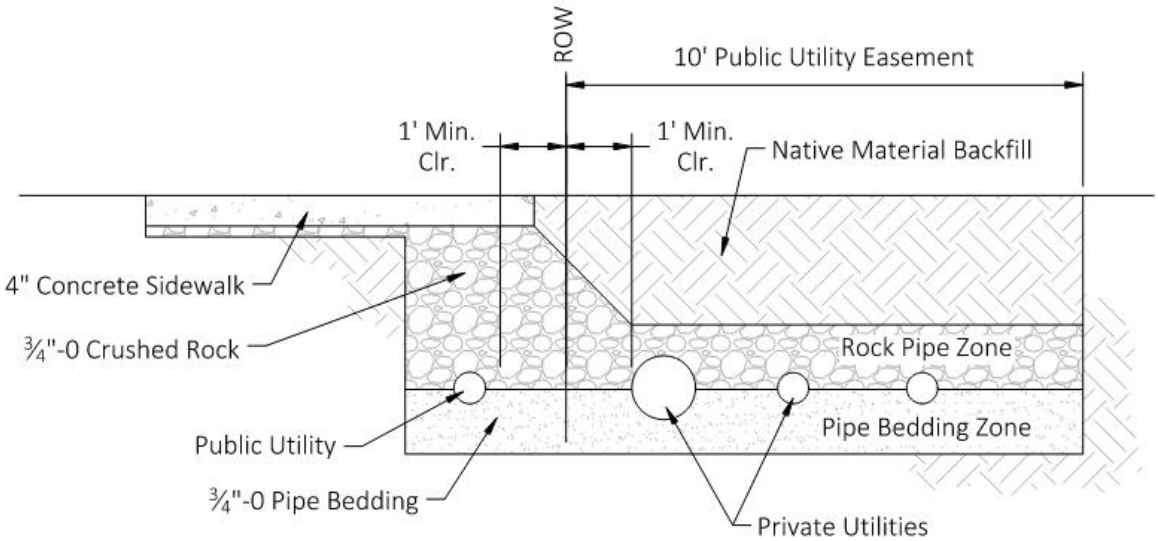
H. All recording costs for easements created by private development shall be borne by the developer.

I. The construction plans must show all existing and proposed easements. This includes the easement type and recorded document information. All proposed easements shall include a blank space for final recording numbers to be added to the record drawings.

J. Overhead utilities must meet the clearances as outlined in the National Electrical Safety Code (NESC) 234 Clearances to Other Structures.

K. Figure 8-2 provides an example of the shared utility trench option.

Figure 8-2: Shared Utility Trench Option



9.0 STREET LIGHTING

Chapter 9 provides street lighting standards for the City. Street lighting levels shall follow PGE standards for all PGE-owned lights. For City lights, a lighting analysis should be completed during the design and approved by the City Engineer.

9.1 PORTLAND GENERAL ELECTRIC (PGE) AND CITY AGREEMENTS

PGE and City Agreements are described in Table 9-1.

Table 9-1: PGE and City Agreements

PGE Option	Description
A	Developer to pay line extension fee, install PGE-provided light pole foundations, developer-provided junction boxes, and conduits with tracer wire. PGE to install the remaining equipment and own and maintain the street lighting system.
B	This option is **not** allowed within the City.
C	Developer to install the street lighting system, pay the line extension fee, and maintain the system through the maintenance period. Beyond the maintenance period, the City will own and maintain the street lighting system. Option C includes streets in the Downtown District and Washington Street, 7th Street, and Molalla Avenue.

9.2 PGE-RELATED DESIGN

A. The Engineer of Record and/or City Project Manager is responsible for arranging with PGE to connect the street lighting system to the local distribution system and for locating the service cabinet.

B. Street lights and poles shall be designed to be PGE Schedule 95 (by City direction only) or Option A (PGE-owned and maintained) or Option C (City-owned and maintained) light emitting diode (LED) lights. All Option C lights must be connected to a City-owned service and meter. The City has the final approval authority on which luminaire to use based on the specific lighting application. For Option C, luminaire information is shown on OC 536.

C. For Option A, refer to PGE's Approved Equipment List for all items, including luminaires, foundation, poles, junction boxes, photocell, etc.

9.3 LIGHTING DESIGN CRITERIA

The lighting design criteria noted below applies to both Option A and Option C.

A. All street lighting shall be designed by a licensed professional engineer (See Section 1.1.1) using the provisions in these *Standards*, and, where applicable, the current version of ANSI/IES RP-8 *American National Standard Practice for Roadway Lighting*.

1. Pedestrian-scale lighting should be adequate to illuminate pedestrian facilities that are a part of transit-oriented districts, town centers and plazas, off-street pathways and shared-use paths, or other areas identified in the Oregon City TSP or other area-specific plans. Typically, this lighting is positioned over the sidewalk rather than the street and is equal to or less than 16 feet above the sidewalk. All pedestrian-scale lighting equipment shall be approved by the City Engineer. Accessway lighting shall be to a minimum level of one-half (0.5) foot candle, a one and one-half (1.5) foot candle average, and a maximum to minimum ratio of seven-to-one (7:1) and shall be oriented not to shine upon adjacent properties. Street lighting shall be provided at both entrances.
2. Illumination shall be provided and evaluated at midblock crossings per ANSI/IES RP-8.

B. All electrical components shall be Underwriters' Laboratories (UL)-approved and testing lab-approved from labs accepted by the State of Oregon.

C. Street illumination design and installation shall conform with the Oregon Standard Specifications for Construction, Oregon Standard Drawings, and City Standard Drawings.

D. All street light plans shall include pole location by station, wiring, conduit, junction boxes, photocells, controller cabinets, power source location, lighting analysis output points, driveway locations, trees, and any other pertinent information. All backup lighting analysis, line loss, and service cabinet circuit load calculations shall be submitted for review along with the plans.

E. All street lights shall be LED.

F. The lighting plans shall include general installation notes, including the type, manufacturer, catalog number, number of LEDs, wattage, mounting height, arm length, and specification of the proposed equipment. Plans shall also include the wiring and circuit diagrams. The lighting color/temperature, and dark sky characteristics are per the PGE approved list and City standard drawings.

G. The lighting plans shall include photometric data, such as average foot-candles, average to minimum ratio, maximum to minimum levels, and lamp lumen depreciation factor. Photometric calculations shall be provided using separate calculation zones for roadway, intersection, and pedestrian facilities. The plans shall indicate the roadway and intersection functional classifications and pedestrian conflict assumed for calculations. An electronic file of the photometric calculations shall be provided as a PDF file.

H. Circuits and cable runs shall be designed to provide separate and independent circuits for street lights. Wire size shall be determined by the loading and distance of each circuit. Loading calculations shall be based on the maximum loading possible for the circuit, assuming all fixtures are operating at the maximum output for the highest drive current for the fixture. Wire shall be sized to limit voltage drops to a maximum of 2% between the utility service connection and the control panel and a maximum of 3% from the control panel to the most distant fixture served. The Engineer of Record or City Project Manager must submit an electronic file of the voltage drop/line loss calculations for the City Engineer to approve.

I. Photometric analysis shall include only light fixtures that are within the right-of-way. Light sources on private property cannot be included in the street lighting analysis.

J. Photometric analysis shall include only light fixtures installed as part of the project for which the analysis pertains and existing light fixtures within the right-of-way. Street lighting analysis shall not include future light fixtures for roadways planned to be 2-3 lanes wide, but it is allowed for roadways planned to be greater than 4 lanes wide.

K. Lighting design shall account for a modified photometric distribution when glare shields are used.

L. A 10-day burn-in period shall be completed before the City's final acceptance of the street lights that are either metered or fall under PGE's Option C standard.

M. The Engineer of Record or City Project Manager shall submit items for materials review to the City Engineer before ordering any street lighting equipment (poles, light fixtures, lighting controls, control nodes, junction boxes, foundations, services, cabinets, etc.) and pass applicable manufacturer warranties along to the City. Specific requirements for light fixtures are further described in Section 9.4.

N. In systems with existing lights on both sides of the street, the circuitry shall be configured so that the lights on one side of the street can be "de-energized" without affecting the operation of the lights on the opposite side of the street. A maximum of 72 hours (3 days) of outage is permissible for existing street lighting. Where work would result in an outage for all existing lights, temporary lighting in a manner acceptable to the City shall be provided. Temporary lighting of up to 1 month (30 days) is allowed, and the Engineer of Record or City Project Manager shall strive to complete all street lighting work and energize lights within that timeframe.

O. A minimum of 2-inch conduit shall run between junction boxes. Between each light pole and the adjacent junction box, there must be 1 conduit that is 2 inches in size. All conduit runs shall be marked with an underground marking tape per 00960.42(e) of the Oregon Standard Specifications for Construction. All conduits shall be Schedule 40 PVC, and all elbows shall be fiberglass. The Engineer of Record or City Project Manager must install bushings on all conduit ends and seal the ends with an approved conduit plug. See City Standard Drawings for additional details.

P. The Engineer of Record or City Project Manager is responsible for locating street light poles so that no portion of the pole, mast arm, or luminaire is within 10 feet of an energized line. Installation shall conform to OAR 437-002-0047 and 437-002-2316.

Q. Table 9-2 provides lighting levels for streets and parallel on-street bicycle facilities.

R. Table 9-3 provides intersection lighting standards. Table 9-4 provides unsignalized pedestrian/bicycle crossing target lighting values.

Table 9-2: Lighting Levels for Street and Parallel On-Street Bicycle Facilities (ANSI/IES RP-8)

Average Maintained Illuminance on the Horizontal				
Roadway Classification	Pedestrian Conflict Area	Minimum Average Maintained in Foot Candles [1]		
		Concrete Street	Asphalt Street	Uniformity Ratio Avg. to Min.
Arterial	High	> 1.2	> 1.7	< 3:1
	Medium	> 0.9	> 1.3	< 3:1
	Low	> 0.6	> 0.9	< 3:1
Collector	High	> 0.8	> 1.2	< 4:1
	Medium	> 0.6	> 0.9	< 4:1
	Low	> 0.4	> 0.6	< 4:1
Local Road	High	> 0.6	> 0.9	< 6:1
	Medium	> 0.5	> 0.7	< 6:1
	Low	> 0.3	> 0.4	< 6:1

[1] Do not design roadways more than 1.3x above the minimum average foot-candlelight levels.

Table 9-3: Intersection Lighting Standards (ANSI/IES RP-8)

Average Maintained Illuminance on the Horizontal				
Intersection Classification	Pedestrian Conflict Area	Minimum Average Maintained in Foot Candles [1 2]		
		Concrete Intersection	Asphalt Intersection	Uniformity Ratio Avg. to Min.
Arterial/Arterial	High	> 2.4	> 3.4	< 3:1
	Medium	> 1.8	> 2.6	< 3:1
	Low	> 1.2	> 1.8	< 3:1
Arterial/Collector	High	> 2.0	> 2.9	< 3:1
	Medium	> 1.5	> 2.2	< 3:1
	Low	> 1.0	> 1.5	< 3:1
Arterial/Local Road	High	> 1.8	> 2.6	< 3:1
	Medium	> 1.4	> 2.0	< 3:1
	Low	> 0.9	> 1.3	< 3:1
Collector/Collector	High	> 1.6	> 2.4	< 4:1
	Medium	> 1.2	> 1.8	< 4:1
	Low	> 0.8	> 1.2	< 4:1
Collector/Local Road	High	> 1.4	> 2.1	< 4:1
	Medium	> 1.1	> 1.6	< 4:1
	Low	> 0.7	> 1.0	< 4:1
Local Road/Local Road	High	> 1.2	> 1.8	< 6:1
	Medium	> 1.0	> 1.4	< 6:1
	Low	> 0.6	> 0.8	< 6:1

[1] Do not design intersections more than 1.3x above the minimum average foot-candlelight levels.
[2] Intersection analysis area includes curb ramp landings and crosswalks.

Table 9-4: Unsignalized Pedestrian/Bicycle Crossing Target Lighting Values (ANSI/IES RP-8)[6]

Average Maintained Illuminance on the Horizontal and Vertical [5]			
Maintained Illuminance Values for Walkways in Foot Candles High Pedestrian Conflict Areas [4]			
Location	**Eavg [1]**	**EVmin [2]**	**Uniformity Ratio [3]**
Mixed Vehicle and Pedestrian	> 2.0	> 1.0	< 4:1
Pedestrian Only	> 1.0	> 0.5	< 4:1
Maintained Illuminance Values for Walkways in Foot Candles Medium Pedestrian Conflict Areas [4]			
Location	**Eavg [1]**	**EVmin [2]**	**Uniformity Ratio [3]**
Pedestrian Areas	> 0.5	> 0.2	< 4:1
Maintained Illuminance Values for Walkways in Foot Candles Low Pedestrian Conflict Areas [4]			
Location	**Eavg [1]**	**EVmin [2]**	**Uniformity Ratio [3]**
Rural/Semi-Rural Areas	> 0.2	> 0.06	< 10:1
Low Density Residential (< 2 dwelling units per acre)	> 0.3	> 0.08	< 6:1
Medium Density Residential (2.1–6.0 dwelling units per acre)	> 0.4	> 0.1	< 4:1

[1] Eavg—Minimum maintained average horizontal illuminance at the pavement surface.

[2] EVmin—Minimum vertical illuminance at 5 feet above the pavement.

[3] Ratio of Eavg to the minimum horizontal illuminance at the pavement surface.

[4] Refer to ANSI/IES RP-8 for additional guidance regarding these tables.

[5] Vertical illuminance is measured at a height of 5 feet in both directions and parallel to the main pedestrian flow.

[6] Target values for midblock and RRFB enhanced crossings.

9.4 LIGHT FIXTURES

PGE light fixtures are the standard, which includes different types.

- The *decorative acorn light fixture* includes two City standards and one PGE standard.
- The *tear drop light fixture* includes one City standard.

Designs should include the same type of fixture on both sides of the street.

Table 9-5 provides a summary of the light fixtures that shall be used on various streets throughout the City. Table 9-6 provides example photos for each type of light fixture presented in Table 9-5.

Table 9-5: Types of Light Fixtures By Street

Location	Tear Drop Style	King Acorn Style	Lumecon Acorn Style	Town & Country Style
Downtown District			X	
Washington Street: 7th Street to Metro/Home Depot			X	
Washington Street: Prairie Schooner Way to Metro/Home Depot	X			
Molalla Avenue: Hwy 213 to Beavercreek Road		X		
Molalla Avenue: Beavercreek Road to Holmes Street/Hilda Street		X		
Molalla Avenue: Holmes Street/Hilda Street to Division Street			X	
7th Street: High Street to Division Street	X			
Holcomb Boulevard: Front Avenue to Winston Drive				X

Table 9-6: Examples of Light Fixtures

Tear Drop Style	King Acorn Style	Lumecon Acorn Style	Town & Country Style

9.5 STREET LIGHT EQUIPMENT & PLACEMENT

Any work performed under permits issued by Oregon City Public Works shall be in accordance with the Oregon Standard Specifications for Construction as prepared by ODOT and the Oregon Chapter of American Public Works Association (APWA) and as modified and adopted by the City. Additional guidance for street light equipment and placement is described below.

A. Option A: PGE street lighting equipment must be included in the most current PGE-approved street lighting equipment list.

B. Option C: Street lighting equipment shall be as shown according to Std. Dwg. OC536.

    1. Street lighting along Molalla Avenue shall only be Option C and as shown according to Std. Dwg. OC536.

C. Light poles and junction boxes shall be located per Std. Dwg. OC536.

D. The Engineer of Record or City Project Manager is responsible for locating street light poles so that no portion of the pole, mast arm, or luminaire is within 10 feet of an energized line. Installation shall conform to OAR 437-002-0047 and 437-002-2316.

E. Street lighting conduit shall be placed under the sidewalk where feasible.

F. If the approved equipment is no longer available, the Engineer of Record or City Project Manager should coordinate with the City Engineer to obtain approval of the currently available alternative street lighting system.

G. Solar-powered equipment is not allowed within the City unless approved by the City Engineer.

9.5.1 Junction Boxes

Standards below apply to Option A and Option C.

A. Junction boxes shall be no more than 3 feet from each pole served, and there shall be 1 junction box for each street light pole. The Engineer of Record or City Project Manager must install 1 junction box for each lighting controller and include one spare 2-inch conduit installed to the controller with a pull string. See Std. Dwgs. OC536-OC536A.

B. All junction boxes and lids shall be open bottom polymer concrete or polymer fiberglass with a skid-resistant cover marked “Street Lighting.”

C. The Engineer of Record or City Project Manager must not install junction boxes in sidewalk ramps or ramp wings. Junction boxes shall be placed in the following locations in order of preference or as approved by the City:

    1. Landscape strip
    2. Back of sidewalk with a concrete apron (within the public utility easement)
    3. Sidewalk (outside of primary walking route; i.e., furniture zone); see Std. Dwg. OC536A

9.5.2 Cable and Wire

Option A wiring shall conform to PGE standards. The following is for Option C only.

A. A single-phase, 3 wire, 240-volt, dedicated metered service shall be provided for street lighting.

B. All wires shall be stranded copper, single conductor, type XHHW, with 600-volt insulation (unless no insulation is provided as noted below). Solid wiring is not permitted. The minimum wire size for the lighting circuit is #10 AWG wire, and the maximum wire size is #1 AWG wire. All wire splices shall occur inside the junction boxes.

C. Street lighting circuits shall be designed to ensure that no section of roadway shall end up completely unlit with the loss of a single circuit. The following circuit configurations apply:

    1. When lighting is provided on both sides of the street, each side of the street shall be on a different circuit.

D. Wire insulation color shall conform to the following:

    1. 120-volt photoelectric circuit wires: A black wire from the controller to the photocell or a red wire for the return to the cabinet shall be used.

    2. 240-volt line distribution wires: Install circuit wire pairs as shown below, with each pair of wires sharing the same insulation color. If additional circuits are required, insulation color shall be approved by the City.

        a. 1st circuit pair—black

        b. 2nd circuit pair—red

        c. 3rd circuit pair—blue

        d. 4th circuit pair—brown

        e. 5th circuit pair—yellow

        f. 6th circuit pair—orange

    3. Grounded (neutral) conductors, if needed, shall be white or natural gray.

    4. Grounding electrode conductors from the light pole to the adjacent junction box shall be green insulated or bare stranded wire.

    5. Equipment ground conductors in the conduit raceways shall be green insulated.

E. Color coding of each conductor shall remain consistent throughout the entire system. Factory supplied striping of conductors will be accepted when the required color insulation is not available. Color tape will not be accepted as an alternate for insulation color coding.

9.5.3 Poles and Foundations

A. All poles shall be grounded. The Engineer of Record or City Project Manager must install a ground rod in the junction box located at each pole. This includes a 1-inch schedule 40 PVC conduit with a #6 green insulated or bare wire from the pole to the ground rod located in each junction box. (See *Oregon Standard Drawings*.)

B. All light poles shall be constructed with a nominal 2-½-inch x 5-inch hand hole placed approximately 2-4 feet above the ground line. In plan view, the handhole shall be at 90 degrees from the mast arm or curbside of the pole. The hand hole must be secured with cast aluminum or galvanized steel cover painted to match the pole and held in place with a stainless-steel, tamper-resistant set screw.

C. All poles should include flower basket irrigation.

D. Breakaway designs shall be used for light poles located along roadways with posted speeds greater than 35 mph and within the clear zone as defined by Table 3-1 of the AASHTO *Roadside Design Guide*, except for those located in drainage ditches, near bus shelters, or in areas with extensive pedestrian concentrations.

E. An inline fuse shall be installed between the circuit and each light fixture depending on whether it is metered or falls under PGE's Option C standard.

F. Poles shall be located a minimum of 15 feet from street trees as shown on Std. Dwg. OC536A.

G. Poles shall be located a minimum of 5 feet from driveway wings, fire hydrants, and other utilities.

9.5.4 Lighting Controller

A. The controller cabinets shall be installed away from intersections and locations where an errant vehicle could damage the cabinet. The cabinet location should be near a side property line and should not detract aesthetically from the adjacent properties. In residential areas, locating cabinets within side yard frontages is preferred to locating them in front yard frontages. Cabinet locations should also consider future system growth. The Engineer of Record or City Project Manager should consult with the City Engineer and PGE regarding cabinet location at the beginning of design.

B. The cabinet shall have a service panel that has a "Service Equipment" rated UL label attached to the panel. A 100-amp, single-phase, 3-wire, 240-volt, dedicated metered service is to be provided by the developer. Each street lighting circuit shall be wired 240 volts. The street light base-mounted controller shall be installed per ODOT's Std. Dwg. TM485 and shall be on *Clackamas County Roadway Standards* and details. The controller shall be made of stainless steel and include circuit breakers, a test switch, and neutral and ground bars. When only one illumination breaker is being installed, there shall be space for three additional illumination breakers. Designers shall follow NFPA 70E standards for arc flash, provide the required labeling for the controller cabinet, and attach available fault current to the inside of the door with a permanent label.

C. The cabinet shall be stainless steel.

D. A single, 3-inch spare conduit shall be installed from the controller cabinet to the nearest junction box with tracer wire and pull line.

E. When designing or installing Option C, a single photocell shall be provided at the BMCL. Photocell model shall be from ODOT Qualified Product List or PGE Approved Equipment List.

10.0 LANDSCAPE DESIGN

Chapter 10 provides information on landscape design for City streets and intersections. Additional design standards are provided OCMC 12.08. For roundabout landscape design considerations, refer to *NCHRP Report 672: Roundabouts, An Informational Guide.*

10.1 PLANT TYPES

A. Trees

1. Tree species type selections should comply with Section 10.2 Street Trees below.

B. Shrubs and Groundcovers

1. Shrub and groundcover species type selections should be drought-tolerant, suitable to the available space, and adapted to street-side environments. Shrubs and groundcover plants are to be selected from the Oregon City Native Plant List unless the City Engineer approves otherwise.

C. Plants found on the Oregon City Nuisance Plant List or other invasive species should never be used.

10.2 STREET TREES

A. Street tree species selection must be in accordance with OCMC 12.08.015—Street Tree Selection, Planting, and Maintenance Requirements. Section 3.5 provides additional information on sight distance considerations for tree planting and maintenance.

B. Types

1. The City will approve street tree species based on specific site conditions. Street tree species are to be selected from the Oregon City Street Tree List. Alternative species may be acceptable with prior City Engineer approval.

C. Clearance Distances

The following distances shall be maintained between trees and street elements, as measured from the center point of the tree:

1. 5 feet from driveways as measured from edge of driveway apron.
2. 5 feet from any regulatory signs.
3. 15 feet from street lights.
4. 5 feet from fire hydrants.
5. 20 feet from intersections as measured from the right-of-way boundary of the intersecting street.
6. 5 feet from all public utilities (e.g., sewer, storm, and water lines, utility meters, etc.).

D. Planting Requirements

1. Refer to OCMC 12.08.015—Street Tree Selection, Planting, and Maintenance Requirements.
2. Plant street trees according to Std. Dwg. OC530, Street Tree Planting in Planter Strip.

E. Distance to Street Light Poles

1. Trees shall be located a minimum of 15 feet from street light poles, as shown on Std. Dwg. OC536A.

F. Irrigation

1. Irrigate new street trees by permanent or temporary means if required by the City Engineer. The City Engineer must approve all irrigation requirements and design/construction methods.
2. In urban conditions, especially when planting in pavement (including median islands and sidewalk cutouts), a permanent irrigation system may be necessary to sustain living plants. The City Engineer must review and approve selection.
3. Implement wise water-use techniques that include water distribution devices that apply water with no runoff or overspray onto pavement or buildings. Incorporate 'smart' controllers and sensors to synchronize water application with changing weather conditions.
4. A qualified designer should prepare irrigation plans and specifications.
5. Irrigation systems using an automatic controller shall have the ability to reduce water application over time to promote plant independence and sustainability.

G. Street trees and their limbs and foliage must comply with OCMC 10.32.030—Sight Line Requirements. Other maintenance requirements related to landscape trimming are included in OCMC 12.08.025.

10.3 MEDIAN DESIGNS

A. Style

1. Street medians should be landscaped with City Engineer approval. Rocked medians should be used for medians near pedestrian crossings and when required for sight distance.
2. Street medians 4 feet wide or less (measured from back-of-curb to back-of-curb) must be designed with hardscape elements including but not limited to rocked areas, textured concrete, or modular unit pavers. This should not include trees, shrubs, or groundcover. Bark mulch may be used in street medians 4 feet wide or less, except for anywhere within a left-turn lane pocket taper.
3. Street medians wider than 4 feet (measured from back-of-curb to back-of-curb) must be planted with trees, shrubs, and groundcovers, including bark mulch, unless otherwise approved by the City Engineer. Median planting design must be in accordance with OCMC 12.08.015. Street medians wider than 4 feet may be designed without plants if unique site conditions warrant it. Median design without plant materials will require the City Engineer's approval.

B. Location

1. Locate street median designs in accordance with OCMC 16.12.016—Street Design. Street trees in planted medians must be spaced 35 feet on-center, and shrubs and/or groundcovers must be spaced 4 feet on-center.
2. Median plant materials must have size and shape characteristics that are appropriate for the available spaces.
3. Street trees shall not be planted closer than 15 feet from street light poles.

C. Pedestrian Refuge Islands

1. For pedestrian and motorist safety, trees, shrubs, and groundcover plants are not recommended in pedestrian refuge islands. Rocked medians should be used instead.

10.4 PLANTING STRIP DESIGNS

Planted landscape strip design shall be in accordance with OCMC 16.12.016.F. Street tree species shall be selected from the Oregon City Street Tree List. Alternative species may be accepted by the City Engineer.

10.5 FURNITURE ZONE

The future zone includes the area from the edge of curb to the right-of-way and may consist of landscaping and other objects associated with adjacent land uses.

A. Planting may be permissible, with City approval, in street section furniture zones.

B. Planting within furniture zones likely means plants in open tree wells, sidewalk cutouts, or tree grates. When planting in paved areas, if approved by the City, consider using structural soils (CU-Structural Soil™) beneath the adjacent pavement to promote healthy root spread and root access to subsurface air and water.

C. For pedestrian and motorist safety, trees, shrubs, and groundcover plants must not restrict access to or compete aesthetically with other amenities located in the furniture zone.

D. Beyond landscape features, items in the furniture zone may include hydrants, benches, trash containers, decorative tree lights, and electric outlets.

E. All items in the furniture zone need to be evaluated together to maintain appropriate access to parking and other land uses.

F. Items in the furniture zone must not impact ADA accessibility.

10.6 GREEN STREETS AND STORMWATER TREATMENT

Landscaping of stormwater treatment facilities must comply with the Oregon City Stormwater and Grading Design Standards. Metro's Designing Livable Streets and Trails Guide provides additional reference information for green streets.

The City encourages projects to incorporate green infrastructure treatments, such as vegetated medians, roadside swales, rain gardens and infiltration planters, permeable pavements, bioretention curb extensions, and street trees. These treatments allow streets to not only manage stormwater but to mitigate the harmful impacts of transportation systems on air, water, noise, and habitat function and connectivity. The goals of green streets are generally to provide stormwater source control, confine stormwater transport and pollutant conveyance to a collection system, restore pre-development hydrology to the extents possible, and provide environmentally enhanced roads. The successful application of green street techniques will promote soil and vegetation contact and onsite infiltration and retention of stormwater.

Examples of green street infrastructure include:

A. **Street trees** support stormwater management, offer wildlife habitat, improve air quality, reduce heat island effects by providing shade, improve roadway aesthetics, promote human well-being through enhanced levels of interaction and carbon sequestration, and calm traffic. On streets with high levels of walking and bicycling, street trees provide buffers from traffic and air pollution.

B. **Planters** are structured facilities with hard walls, generally flat bottoms, growing media, topsoil, and vegetation. They can be designed to promote infiltration directly into the native ground below or designed to be impermeable with liners when infiltration is either not desired or not feasible. When designed for impermeability, planters must be plumbed to a stormwater collection system. Planters are often used as one of a series of facilities within a streetscape to meet stormwater requirements.

C. **Curb extensions with landscaping** have hard edges, generally flat bottoms, soil, vegetation, and the option of permeability or impermeability. Landscape extensions can also be combined with adjacent planters to further reduce runoff volumes, attenuate peak flows, and maximize resident stormwater storage capacity before discharging into a collection system.

D. **Basins** (or rain gardens) are facilities that are depressed relative to the street and sidewalk elevations, and they may have hard edges or bermed side slopes, flat bottoms, topsoil and/or growing media, and vegetation. Basins are generally used when and where modeled infiltration rates into the site are acceptable and are not harmful to either the roadway pavement or base. They are typically used as a single facility to handle larger volumes of water within a catchment area.

E. **Swales** are depressed landscape strips with sloped earthen sides. Swales take up more room within the right-of-way than planters because swales lack a hard edge and require side slopes to match adjacent street and sidewalk grades. Swales also convey water parallel to the roadway along their sloped surfaces, which can reduce subsurface collection system pipe needs.

F. **Permeable Pavement** comes in four forms: permeable concrete, permeable asphalt, permeable interlocking concrete pavers, and grid pavers. Permeable concrete and asphalt are similar to their impermeable counterparts but are open graded. Concrete and grid pavers are modular systems installed with gaps between paver units to allow stormwater to infiltrate through to the aggregate base. Grid pavers are typically a durable plastic matrix that can be filled with gavel or vegetation. Grid pavers are commonly designed to accommodate emergency vehicle or fire truck access on private properties. ADA compliance must be verified in applicable areas.

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APPENDIX A

ADDITIONAL RESOURCES

APPENDIX A—ADDITIONAL RESOURCES

The *Standards* strive for consistency with the most recent versions of the City Relevant Resources described in Section 1.2.

If the *Standards* do not address a specific design issue, the most recent version of the following documents should be referenced. In all situations, engineering shall determine the appropriate design reference and its applicability.

American Association of State Highway and Transportation Officials (AASHTO), *A Guide for Achieving Flexibility in Highway Design*

AASHTO, Guide for the Development of Bicycle Facilities

AASHTO, Guide for the Planning, Design, and Operation of Pedestrian Facilities

AASHTO, Guidelines for Geometric Design of Very Low-Volume Local Roads

AASHTO, LRFD Bridge Design Specifications

AASHTO, A Policy on Geometric Design of Highways and Streets

AASHTO, Roadside Design Guide

AASHTO - Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals

American Society for Testing and Materials (ASTM)

The Asphalt Institute, *The Asphalt Handbook*

The Asphalt Institute, Thickness Design - Highways and Streets

Federal Highway Administration (FHWA), Manual on Uniform Traffic Control Devices (MUTCD)

FHWA, Standard Highway Signs

FHWA, Roundabouts: An Informational Guide

Institute of Transportation Engineers (ITE), Traffic Control Devices Handbook

ITE, Traffic Engineering Handbook

ITE, Trip Generation Manual

ITE, Trip Generation Handbook

International Building Code (IBC)

International Plumbing Code (IPC)

National Association of City Transportation Officials (NACTO), *Urban Bikeway Design Guide*

NACTO, *Urban Street Design Guide*

ODOT, Highway Design Manual

ODOT, Hydraulics Design Manual

ODOT, Oregon Temporary Traffic Control Handbook for Operations of Three Days or Less

ODOT, Traffic Control Plans Design Manual

ODOT, Traffic Line Manual

ODOT, Traffic Manual

ODOT, Traffic Signal Policy and Guidelines

ODOT, Sign Policy and Guidelines

ODOT, Oregon Standard Drawings

ODOT and American Public Works Association (APWA), *Standard Specifications for Construction*

Oregon Fire Code, Appendices B and D

Oregon Fire Code Metro Code Committee *Fire Code Applications Guide*

Oregon Supplement to the MUTCD

Other local fire codes

Transportation Research Board (TRB), *Highway Capacity Manual*

TriMet Bus Stops Guidelines

APPENDIX B

FORMS

B1. DESIGN MODIFICATION FORM

City of Oregon City

Design Modification Request

For Capital Improvement Program Projects

Per Oregon City Street Standards Section 2.1

City Use Only

Reference #:

Request submitted by (name, title, contact email and phone number):

Engineer of Record (License number):

Date:

PROJECT INFORMATION

Project name:

Nearest address or intersection:

City map and tax lot number(s):

Functional classification of road:

Posted speed:

DESIGN MODIFICATION

Applicable roadway standard:

Description of modification and reason for request:

Supporting documentation *(photos showing features requiring exception, plan sheets, other items that support the need for the exception)*:

Mitigation for modification:

Public benefit:

City of Oregon City

Design Modification Request - *continued*

Submitted By

Name:

Signature:

Date:

Space provided for Engineer of Record stamp.

City Use Only

Approved by the City Engineer or their designee:

Name and Title:

Signature:

Date:

B2. PUBLIC IMPROVEMENT MODIFICATION APPLICATION

OREGON CITY

Public Works – Development Services

625 Center St | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

DEVELOPMENT SERVICES
TYPE I PUBLIC IMPROVEMENT MODIFICATION APPLICATION

Application Date:

Project Name:	
Proposed Land Use or Activity:	
Physical Address(es) of Site:	
Clackamas County Map and Tax Lot Number(s):	

Applicant(s)

Applicant(s) Signature:		
Applicant(s) Name Printed:		Date:
Mailing Address:		
Phone:	Fax:	Email:

Property Owner(s)

Property Owner		
Property Owner Signature		
Property Owner Name Printed:		Date:
Mailing Address:		
Ownership Address:		
Phone:	Fax:	Email:

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties' willingness to comply with all code requirements.

Please respond to Oregon City Municipal Code (OCMC) Section 16.12.13.A below. Note that, to be processed as Type I per 16.12.013.B., Public Improvement Modifications reviewed by Development Services must regard a modification to driveway location, size, and sharing standards in 16.12.035. Resources available from the City include OCWebMaps, OCMC Chapter 16.12, Public Works standards, and Public Works Master Plans. Please attach additional pages as needed.

16.12.13 - Modifications.

The applicant may request and the review body may consider modification of the standards in this chapter resulting from constitutional limitations restricting the City's ability to require the dedication of property or for any other reason, based upon the criteria listed below and other criteria identified in the standard to be modified. All modifications, except for adjustments approved by the City Engineer for tree preservation purposes pursuant to 16.12.013.B, shall be processed through a Type II Land Use application and may require additional evidence from a transportation engineer or others to verify compliance.

A. Compliance with the following criteria is required:

1. The modification meets the intent of the standard;

2. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;

OREGON CITY
Public Works – Development Services
625 Center St | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

3. The modification is consistent with an adopted transportation or utility plan; and

4. The modification is complementary with a surrounding street design; or, in the alternative;

5. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The City shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

City Use Only:

Approved by the City Engineer or their designee:

_____
Name and Title

_____ _____
Signature Date

B3. ADA MODIFICATION FORM

City Use Only

Reference #:

City of Oregon City

Americans with Disabilities (ADA) Modification Request

Per Oregon City Street Standards Section 2.1

Request submitted by (name, title, contact email and phone number):

Engineer of Record (License number):

Date:

PROJECT INFORMATION

Project name:

Nearest address or intersection:

City map and tax lot number(s):

Functional classification of road:

Posted speed:

DESIGN MODIFICATION

Type of accessibility feature:

- ☐ curb ramp
- ☐ pedestrian signal push button clear space
- ☐ pedestrian signal push button

New or Alteration:

- ☐ New accessibility feature (there was no accessibility feature at the location prior to the project)
- ☐ Alteration of an existing accessibility feature (there was an accessibility feature at the location of the project)

Description of modification and reason for request *(PROWAG 202.3.1: Where existing physical constraints make it impractical for altered elements, spaces, or facilities to fully comply with the requirements for new construction, compliance is required to the extent practical within the scope of the project. Existing physical constraints include, but are not limited to, underlying terrain, right-of-way availability, underground structures, adjacent developed facilities, drainage, or the presence of a notable natural or historic feature)*:

City of Oregon City

Americans with Disabilities (ADA) Modification Request - *continued*

Mitigation for modification *(How does the design strategy accomplish accessibility to the maximum extent practical?):*

Supporting documentation *(photos showing features requiring exception, plan sheets, other items that support the need for the exception)*:

Submitted By

Name:

Signature:

Date:

Space provided for Engineer of Record stamp.

City Use Only

Approved by the City Engineer or their designee:

Name and Title:

Signature:

Date:

B4. WORK ZONE SPEED REDUCTION REQUEST FORM

City of Oregon City

Temporary Speed Reduction Request

City Use Only

Reference #:

Request submitted by (name, title, contact email and phone number):

Engineer of Record (License number):

Date:

PROJECT INFORMATION

Project name:

Project Start Date:

Street Name: | Start and End Mile Post:

City map and tax lot number(s):

EXISTING STREET INFORMATION

Functional classification of road:

Posted speed:

Annual Average Daily Traffic (AADT):

Additional notes on street features (e.g., limited sight distance due to horizontal/vertical alignments, etc.):

DESCRIPTION OF NEED

Describe in detail the scope or work, and condition or operations that would merit a construction speed reduction. Identify portion(s) of the traffic control plan that would benefit from a speed reduction.

City of Oregon City

Temporary Speed Reduction Request - *continued*

REQUESTED SPEED REDUCTION

Describe the speed reduction requested for each condition or operation and provide the location of the request, including beginning and ending mileposts.

TIMING

Describe when the condition or operation will be in place using the stage/phase, specific activity, project milestone, or time of day.

FACTORS

Select the work type and factor(s) for the construction speed zone reduction and provide explanation.

General Conditions:

- ☐ Temporary horizontal curve is designed and includes an advisory speed >10 mph below pre-construction posted speed.
- ☐ Reduced safe speed for stopping sight distance.
- ☐ Condition conflicts wit normal driver expectancy.

Shoulder Activity:

- ☐ Uninterrupted traffic flow with workers present for extended periods, with 10 feet of the traveled way, unprotected by barrier.

Lane Encroachments, Centerline Encroachments, or Lane Closures:

- ☐ Uninterrupted traffic flow with workers present for extended periods, with 10 feet of the traveled way, unprotected by barrier.
- ☐ Barrier within 2 feet of the traveled way.
- ☐ Pavement edge drop-off (>2 inches) within 2 feet of the traveled way.
- ☐ Lane width reduction resulting in a lane width of ≤ 10 feet.

Temporary On-Site Diversion:

- ☐ Temporary on-site diversion lane width ≤ 11 feet.
- ☐ Advisory speed for temporary on-site diversion's horizontal curvature >10 mph below the pre-construction posted speed.

City of Oregon City

Temporary Speed Reduction Request - *continued*

Submitted By

Name:

Signature:

Date:

Space provided for Engineer of Record stamp.

City Use Only

Approved by the City Engineer or their designee:

Name and Title:

Signature:

Date:

APPENDIX C

CITY WEBSITES AND CHECKLISTS

APPENDIX C—CITY WEBSITES AND CHECKLISTS

Websites and checklists associated with the *Standards* are provided below with associated sections in the *Standards.*

Section 2.2: Permitting/Approval Process

City Permits and Associated Checklist Information
https://www.orcity.org/publicworks/engineering-permits

Development Services Permit Checklists
https://www.orcity.org/publicworks/engineering-development-services-checklists

Performance Bonds, Cost Estimates and Agreement Forms
https://www.orcity.org/publicworks/required-documents.

Engineering Fees
https://www.orcity.org/publicworks/engineering-fees

Section 2.3 Construction Inspection

Private Development Minimum Inspection Requirements
https://www.orcity.org/sites/default/files/fileattachments/public_works/page/12662/minimum_inspection_requirements_checklist_11-2020_fillable.pdf

Section 3.4 Intersections

ADA Design Review Checklist—Medians/Traffic Islands
https://dochub.clackamas.us/documents/drupal/6d27b366-4418-4dda-b3b9-d8bfc22161d1

Section 4.1 Pedestrian Design

Clackamas County ADA Design Review Checklist—Sidewalk/Multiuse Path
https://dochub.clackamas.us/documents/drupal/b4efebc9-754d-4506-89bd-6b09660384dc

Clackamas County ADA Assessment Checklist—Curb Ramps
https://dochub.clackamas.us/documents/drupal/18d3d081-2838-4186-8010-e5c690778f1f

Street Design Standards

City of Oregon City

April 2023

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1.0 INTRODUCTION

Chapter 1 introduces the *Oregon City Street Design Standards (Standards)* by describing the purpose, intended use, and project team roles. Additional relevant resources support the material provided in the *Standards.* Chapter 1 also includes an overview of overarching topics, such as performance-based design, context-based design, equitable development of climate friendly neighborhoods, and green streets.

1.1 PURPOSE AND INTENDED USE

The Standards intend to implement Oregon City Municipal Code (OCMC), guide private development, and provide criteria for capital improvement projects. The *Standards* include engineering guidelines for constructing public and private improvements, serving new and future developments, and reconstructing existing facilities to upgrade existing infrastructure. These *Standards* apply to all public improvements within the existing public right-of-way (ROW) or any recorded easements, all improvements from new developments required within the proposed public rights-of-way or public easements, all improvements intended for maintenance by the City of Oregon City (City), and all other improvements that require the City's approval. The City Standard Drawings provide additional construction details required for a permit or a set of plans.

The *Standards* are available online at:
Oregon City Street Design Standards
https://www.orcity.org/publicworks/design-and-construction-standardsdrawings

This website will contain the most recently adopted *Standards*, the Standard Drawings, Americans with Disabilities Act (ADA) design and inspection checklists, the Design Modification Request form, and other materials. The City of Oregon City Municipal Code takes precedence if conflict exists with these *Standards*.

1.2 CHAPTER OVERVIEW

Table 1-1 provides an overview of each chapter in the *Standards.*

Table 1-1: Chapter Overview

Chapter	Overview
Chapter 1: Introduction	Provides purpose and intended use, references to support the Standards, and includes encouragement and guidance to use green street designs and climate friendly approaches to future designs.
Chapter 2: General Policies and Standards	Discusses the modification process, the permitting process, as well as overviews of right-of-way management, survey monumentation, and a note about historic districts.
Chapter 3: Geometric Design	Provides technical requirements for curves, intersections, and cul-de-sacs. Safety items such as sight distance, roadside clearance and traffic calming are also discussed. Private improvements such as driveways, alleys, and private streets follow public improvement design standards. There is also a section on Fire Department Standards.
Chapter 4: Multimodal Design	Includes guidance on how practitioners should include all modes of transportation when designing new or expanded roadways. This includes shared use paths, bicycle facilities, sidewalks, transit, and freight.
Chapter 5: Traffic Engineering	Provides design requirements for speeds, stop signs, traffic signals, signage, pavement markings and any special standards.
Chapter 6: Pavement Design	Includes technical requirements for thickness of pavement.
Chapter 7: Stormwater	References the Stormwater and Grading Design Standards and reminds users that stormwater management must be incorporated into street design.
Chapter 8: Utilities	Provides users technical guidance on how to address electric, gas, telephone, cable, telecom, and fiber networks within the right-of-way and associated easements.
Chapter 9: Street Lighting	Provides design standards for decorative street light fixtures and poles as well as the use of PGE related designs and associated electrical equipment.
Chapter 10: Landscape Design	Describes the furniture zone and reminds designers how to design the right-of-way for stormwater management, pedestrian use, and an urban landscape.
Appendices	Provides references, forms, and checklists that can be used during the design process.

1.3 ROLES

The City's policy requires compliance with Oregon Revised Statute (ORS) 672 for professional engineers.

All engineering plans, reports, or documents shall be prepared by a registered professional engineer or a subordinate employee under the engineer's direction and shall be signed by the engineer and stamped with the engineer's seal to indicate the engineer's responsibility for them. For design and construction projects, a private development or City contracted Engineer of Record is responsible for preparing project documentation and plans based on City standards. The City Project Engineer or City Project Manager is responsible for reviewing any proposed public facility addition, extension, modification, or other type of project within the city to determine if the proposal is permissible, if it meets City standards, and if there are any special requirements before or during engineering or other proposed design work.

City comments or approval of the plans and any related documents for any job does not in any way relieve the Engineer of Record of their responsibility to meet all City requirements or obligation to protect the life, health, and property of the public. The plan for any project shall be revised or supplemented at any time it is determined that the City's full requirements have not been met.

Specific titles and roles of those involved in preparing, reviewing, and approving plans and design decisions for City projects are described below.

A. Development Personnel

1. Applicant: Property owner or person designated by the property owner to be the representative for an application for a development proposal, permit, or approval. May be referred to as "owner" or "developer."

2. Engineer of Record/Inspecting Engineer: A professional engineer with civil engineering expertise holding a valid license from the State of Oregon that is responsible for stamping plans and documents prepared for a project and/or primary inspection of construction for a project. This person is part of a consulting engineering company working for either the Applicant or the City.

B. City Personnel

1. City Engineer: Oversees the Engineering Group and provides final direction and approval for City projects. May designate a subordinate to make decisions required of the City Engineer.

2. Engineering Group: A group led by the City Engineer that provides professional engineering services to various City departments and the general public; includes the following groups:

    a. *Engineering Services:* Manages capital projects and right-of-way management; provides erosion control inspection.

    b. *Development Services:* Manages public and private development.

    c. *Construction and Right-of-Way Management:* Provides inspection services for permits and provides permitting and oversight to the right-of-way.

3. Community Development Department: A group led by the Community Development Director that consists of Planning and Building.

a. *Planning*: Staff members who provide planning, zoning, and land use services for the City.

b. *Building*: Staff members who provide building permit and building inspection services for the City.

4. **Project Engineer/Project Manager**: The staff person who manages a City project or provides oversight and permitting to a private development project.

5. **City Inspector:** Provides secondary oversight and inspection to private development.

1.4 RELEVANT RESOURCES

The *Standards* are supported by and may be used in conjunction with other associated City, Clackamas County (County), Oregon Department of Transportation (ODOT), and national street design resources and publications. Where the *Standards* contained in this document do not address a particular situation, the standards contained in these other associated resources shall apply. The primary City, County, State, and national resources are below. Additional resources are in Appendix A.

City resources include:

A. Oregon City Municipal Code (OCMC)

B. Oregon City Concept Plans

1. Thimble Creek (Beavercreek Road) Concept Plan
2. Park Place Concept Plan
3. South End Concept Plan

C. Oregon City Corridor Plans and Studies

D. Oregon City Standard Drawings (Street Standard Drawings 500 Series)

NOTE: Standard Drawings will be noted as "Std. Dwg. OC###" throughout the *Standards.*

E. Oregon City Existing Design Standards and Manuals:

1. Transportation System Plan (TSP)
2. Sanitary Sewer Design Standards
3. Stormwater and Grading Design Standards
4. Water Distribution System Design Standards
5. Sewage Pump Station and Force Main Design Standards
6. Pavement Cut Standards
7. Erosion Prevention and Sediment Control Planning and Design Manual
8. Trails Master Plan

9. City Transportation Demand Management Plan 2017, Final Report

The *Standards* presented in this document provide technical criteria to support the ~~take precedence over the~~ Oregon City Concept Plans, Corridor Plans, and Studies. The *Standards* do not intend to change the vision and goals presented in existing plans and studies. The *Standards* take precedence over technical criteria presented in other City plans and studies, if conflicts exist. ~~if conflicts exist~~. The City Engineer will provide final direction if there are interpretation questions or if there are any conflicts between documents. Projects should also review and consider the information provided in specific Oregon City Concept Plans. City plans and studies may introduce the need for additional design flexibility on projects to meet the vision and goals for the community. In these cases, the City's design modification process presented in Chapter 2, Section 2.1 can support the decision-making process and documentation.

County, State, and national resources include:

A. *Clackamas County Roadway Standards*

B. ODOT *Blueprint for Urban Design*

C. ODOT *Highway Design Manual*

D. ODOT *Traffic Signal Guidelines*

E. American Association of State Highway Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets* (AASHTO *Green Book*)

F. AASHTO *Roadside Design Guide*

G. Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD) for Streets and Highways with Oregon Supplement

H. Oregon Standard Specifications for Construction and Standard Drawings

I. Chapter 333 Oregon Administrative Rules

J. Oregon Fire Code

K. Oregon Certification Office for Business Inclusion and Diversity (COBID)

L. Oregon Metro Designing Livable Streets and Trails

M. Oregon Highway Plan

N. ODOT *Speed Zone Manual*

O. FHWA Intersection Control Evaluations

1.5 PERFORMANCE-BASED AND CONTEXT-BASED DESIGN

Integrating a performance-based and context-based design approach into project decision-making can verify that each City project meets the City Commission's goals and vision. Performance-based design establishes project goals early in the project and verifies that project decisions throughout the project's various stages align with the original goals.

Goals may address:

A. The vision of the community, including existing characteristics and desired future lane-use patterns and growth.

B. The role and function of the street within the network.

C. The users of the street based on the surrounding land uses, future vision, and role of the street.

Project performance metrics are identified to evaluate alternatives based on the project goals. For each project, performance measures should be tailored to evaluate an alternative's ability to respond to the specific needs of the users and should relate directly to the project's documented goals. For example, a community may want to implement bicycle lanes on an arterial while minimally impacting traffic mobility. Bicycle level of traffic stress (LTS) or multimodal level of service (MMLOS) could be used to measure impacts to bicyclists, while the traditional vehicle volume-to-capacity (v/c) ratio could still be considered for traffic mobility.

The ODOT *Blueprint for Urban Design* provides additional guidance on how to identify project goals and performance metrics and how to implement a performance-based design approach. National activities and associated publications, such as FHWA's Performance-Based Practical Design initiatives and *NCHRP Report 785: Performance-Based Analysis of Geometric Design of Highways and Streets* (NCHRP Report 785), have resulted in a framework for executing this project approach. As presented in the AASHTO *Green Book,* this approach shapes how designers deliver projects in a variety of contexts and project stages. In addition, the ODOT *Blueprint for Urban Design* supports this approach and details how it may apply to a variety of projects.

The following section provides an overview of this approach, consistent with FHWA and ODOT roadway design approaches.

1.5.1 Performance-Based Design

Performance-based design is a decision-making approach for guiding and documenting planning and design decisions. This approach:

A. Emphasizes the outcomes of planning and design decisions as the primary measure for design effectiveness and project success.

B. Guides practitioners to clearly outline intended project outcomes and select performance measures that align with those outcomes.

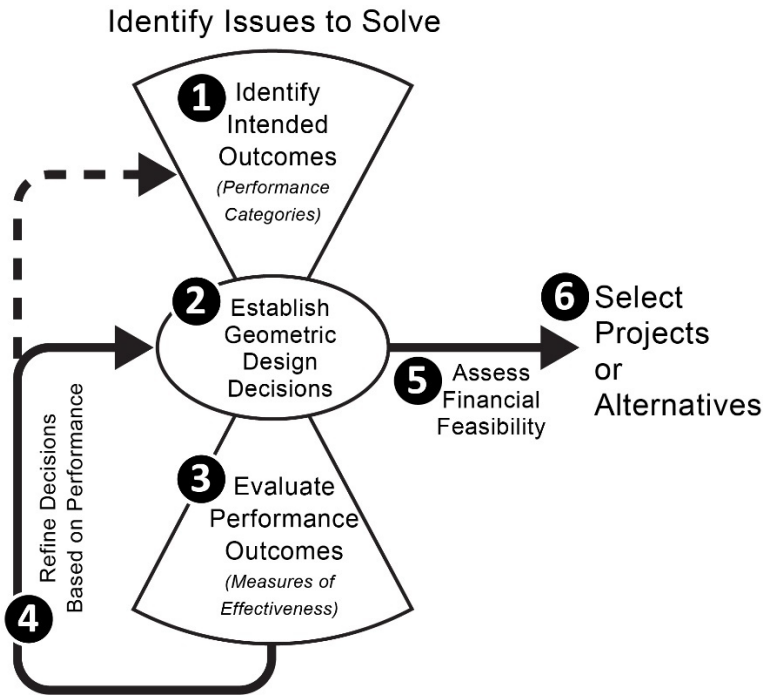
C. Creates a method for documenting planning and design choices to allow agencies to make informed design decisions.

D. Supports risk management and tort liability by providing a decision-making framework for documenting planning and design decisions and solutions.

The performance-based design approach includes frameworks that can help project teams evaluate the trade-offs of various design decisions. Making decisions based on the context and roadway users can help verify that project outcomes align with the current and/or future land use vision.

Figure 1-1 provides an overview of the performance-based approach from NCHRP Report 785.

Figure 1-1: Performance-Based Design Approach



This performance-based approach considers:

1. Identifying desired project outcomes and performance metrics.
2. Establishing design decisions based on the desired outcomes.
3. Evaluating the performance of the design.
4. Iterating and refining the design to align solutions with desired outcomes.
5. Assessing the financial feasibility of the alternatives.
6. Selecting a preferred alternative that aligns with the desired outcomes.
7. Potentially reassessing desired outcomes if no acceptable solution is identified.

The performance-based framework is founded on three basic steps:

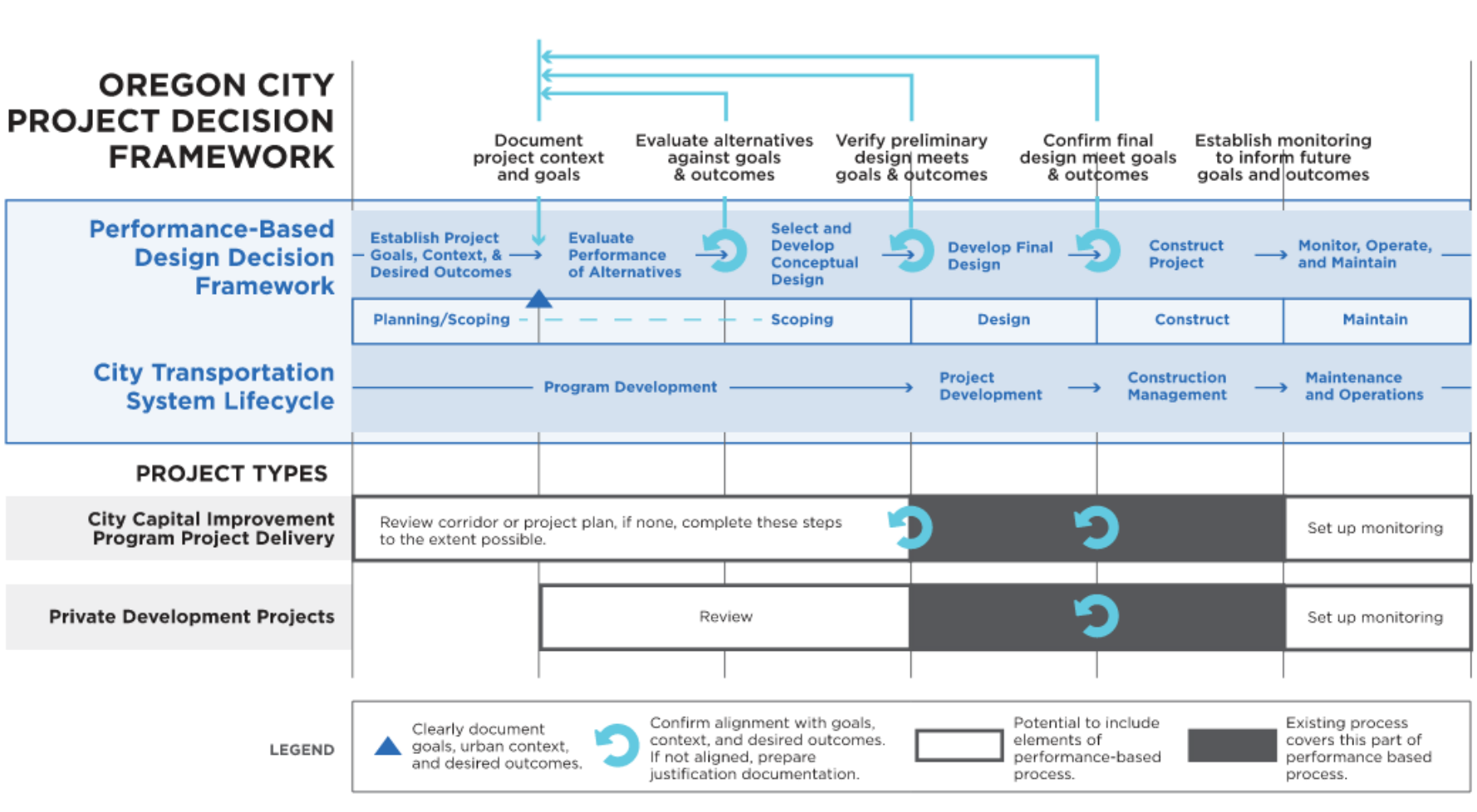
1. **Project Initialization:** Understand context classification (Section 1.3.2 and Section 1.3.3) and project context considerations to help establish intended project outcomes.
2. **Concept Development:** Generate specific alternatives best suited for the identified project needs and outcomes.
3. **Evaluation and Selection:** Use project-specific performance metrics to assess, refine, and advance the alternative.

Figure 1-2 provides a decision-making framework to guide practitioners through an iterative process that allows for flexibility in the design, continuous verification of desired project outcomes, and documentation of design decisions throughout each stage of the process.

The blue circular arrow symbols highlight milestones where the project goals and desired project outcomes should be revisited to verify that the planning and design decisions, alternatives development, and designs align with the original intent of the project and serve user needs. These are also milestones that require documenting planning and design decisions. If design decisions, project team discussions, and alternative evaluations have led to any changes in the performance measures or project goals, this information and the project team decisions should be clearly documented.

Item 7a.

Figure 1-2: City Project Decision-Making Framework



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1.5.2 City Functional Classifications and Street Types

Oregon City classifies the street system into a hierarchy organized by street function and type. These classifications ensure that streets reflect the neighborhoods through which they pass and consist of a scale and design appropriate to the character of abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes, including pedestrians, bicyclists, transit riders, motor vehicles, and freight. The City's multimodal street system is detailed in the Oregon City TSP.

The functional classifications include:

A. Major arterial

B. Minor arterial

C. Collector

D. Local street

The street types include:

A. Commercial

B. Industrial

C. Residential

D. Mixed-use

1.5.3 Oregon Statewide Context-Based Design

In addition to the functional classifications and street types identified by the City, ODOT has established statewide urban context classifications. Project teams should consider how the City project may fit within the surrounding context established by the state, particularly if state facilities are adjacent to or are intersecting with the City streets within the project.

The ODOT *Blueprint for Urban Design* has identified six urban context classifications, including:

A. Traditional Downtown/Central Business District (CBD): Areas with the highest development and building heights in an urban area. Typically, a few square blocks. Buildings have mixed land uses, are built up to the roadway, and are within a well-connected roadway network.

B. Urban Mix: Mix of land uses within a well-connected roadway network. May extend long distances. Commercial uses front the street, with residential neighborhoods on top or immediately behind land uses.

C. Commercial Corridor: Mostly commercial and industrial uses with large building footprints and large parking lots set within large blocks and a disconnected or sparse roadway network.

D. Residential Corridor: Mostly residential uses within a well-connected or somewhat-connected roadway network. May extend long distances. Single-family homes may have direct access to the state roadway.

E. **Suburban Fringe:** Sparsely developed lands, typically at the edge of an urban growth boundary. May be large-lot residential, small-scale farms, or have intermittent commercial or industrial uses.

F. **Rural Community:** Small concentrations of developed areas immediately surrounded by rural, undeveloped areas.

The ODOT *Blueprint for Urban Design* (Chapters 2 and 3) provides additional information about designing roadways within each of the contexts that may help support City decisions for projects within these areas. Projects that integrate context considerations can help project teams:

A. Understand the effects of existing and future land uses.

B. Efficiently serve existing and emerging communities and the various users traveling along and crossing the streets.

C. Provide better tools for streets transitioning between communities.

As projects consider design decisions to align with the project-specific needs, the statewide concepts for context classification should be used to evaluate tradeoffs and inform decision-making. Any decisions that result in designs outside of the City *Standards* need to be processed through a City Design Modification Process for Capital Improvement Program Projects or a Public Improvement Modification Process for Private Development Projects. Additional information on modifications is described in Section 2.1.

1.6 EQUITABLE DEVELOPMENT OF CLIMATE FRIENDLY NEIGHBORHOODS

In alignment with the City Commission goals, the City supports equitable development of climate friendly neighborhoods. Greenhouse gas emissions from motor vehicles and serious traffic crashes are two of the most pressing transportation issues; addressing these issues will require a transportation system designed to serve multiple modes of travel, including walking, bicycling, and accessing public transit. To enhance community livability, streets must function not only as corridors for moving people, goods, and services but as community gathering spots, public spaces, and stormwater management facilities. Street design determines how safe, sustainable, resilient, multimodal, and economically beneficial streets are. All projects should consider how to effectively integrate design features that align with community values.

In addition, the City is supportive of contracts, including those from minority-owned, women-owned, service-disabled veteran-owned businesses as well as emerging small businesses. Certified businesses using the Certification Office for Business Inclusion and Diversity (COBID) are encouraged.

1.7 GREEN STREETS

To limit how much stormwater and pollutants eventually make their way into vulnerable natural waterways, all streets must manage stormwater, treat runoff to reduce pollution, and infiltrate water into the ground. The City encourages projects to incorporate green infrastructure treatments, such as vegetated medians, planters, curb extensions, and street trees. This allows streets to not only manage stormwater but to mitigate the harmful impacts of transportation on air, water, and wildlife habitat and connectivity. This street function supports human and environmental health. Oregon Metro's *Designing Livable Streets and Trails Guide* provides additional information on green streets.

2.0 GENERAL POLICIES AND STANDARDS

Chapter 2 provides an overview of City general policies and standards. Specific information regarding design modification documentation is included to support decision-making.

2.1 DESIGN DECISIONS AND MODIFICATIONS

A performance-based design approach will help the design team consider the project context and the intended project outcomes when establishing the design controls and associated design criteria on a project-by-project basis. The design team for each project within the City is responsible for making every reasonable effort to meet these *Standards*. However, this will not always be practical or appropriate. These *Standards* are not meant to limit creative engineering efforts to provide alternate solutions to specific constrained areas or to relieve the responsibility for professional engineering judgment. When standards are not met, designers can document their design decisions through design modifications. Practical design modifications that preserve the function and safety of the street system and offer benefits to aesthetics, resource protection, ease of maintenance, and livability are encouraged.

Types of modifications are described below.

A. The City's design modification processes should be used for capital improvement projects and represent a means for the design team to identify, justify, and implement design features that do not fall within the designated design standards established by the City.

B. Private development projects should use the Public Improvement Modification process outlined in OCMC 16.12.013.

C. The Americans with Disabilities Act (ADA) Modification Process follows the procedures detailed in Section 2.3.1.

When the City is providing maintenance to existing infrastructure and seeking to complete maintenance in a way that is contrary to the typical standards, it should follow the City Design Modification Process.

2.1.1 Design Modification Process for Capital Improvement Projects

If a capital improvement project cannot meet these *Standards* or those outlined in OCMC, a design modification is required to propose improvements less than or in contrast with the requirements. Requests to modify design standards shall use the City Design Modification form in Appendix B.

2.1.1.1 Criteria for Design Modifications to Standards

The City may grant a modification when doing so does not compromise public safety or the intent of the City's *Standards* if any one of the following conditions are met:

A. The subject standard is deemed not applicable.

B. Topographic, right-of-way, overlay districts (e.g., natural resource overlay district, historic, Willamette Greenway, and geologic hazards), or other geographic conditions impose an environmental concern or constrain constructability and an equivalent alternative that can accomplish the same design intent is available.

C. A minor change to the standard is required to address a specific design or construction constraint that, if not enacted, will result in an undue hardship.

D. The proposed modification does not compromise safety, function, appearance, and maintainability based on sound engineering and technical judgment.

E. The modification does not conflict with land use requirements.

2.1.1.2 Review for Design Modifications to Standards

Design modifications are typically submitted before land use application approval or early in the design process when related to capital improvement projects.

A. Modifications include but are not limited to:

    1. Geometric design and the modification or omission of standard roadway cross section elements
    2. Sight distance
    3. Access spacing
    4. Number of accesses
    5. Intersection angle

B. The City Engineer will review a request to modify design standards and will make one of the following decisions:

    1. Approve as proposed
    2. Approve with changes
    3. Deny with an explanation

C. Design modification approval does not constitute a precedent for use at other locations.

2.1.2 Public Improvement Modification Process for Private Development

If a private development cannot meet these *Standards* or those outlined in OCMC, a public improvement modification is required to propose improvements less than or in contrast with the requirements. Often, this modification is requested to reduce the required right-of-way dedication, reduce the size of the pavement required, eliminate a street parking requirement, or address other requirements outlined in the OCMC 16.12.016.

Land use conditions of approval are commonly written so that there is little flexibility after land use approval, so it is imperative to address design modification requests before land use approval. If a design modification is requested after the land use conditions of approval are issued, an additional application for a modification of the conditions of approval or a new land use application through the Planning and Zoning Division may be required.

2.1.2.1 Criteria for Public Improvement Modifications to Standards

The OCMC 16.12.013 outlines five criteria that shall be met for the City to support a change to the OCMC or these *Standards*:

A. The modification meets the intent of the *Standard*.

B. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists, and freight.

C. The modification is consistent with an adopted transportation and/or utility master plan.

D. The modification is complementary to a surrounding street design.

E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the State or Federal constitution. The City is under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

2.1.2.2 Review for Public Improvement Modifications to Standards

A. A Public Improvement Modification is processed as a Type I or Type II Land Use Decision.

    1. Type I, including driveways and sidewalks, is processed through Public Works.

    2. Type II is processed through the Planning Division using the Land Use Application Form.

B. If a property seeks a modification to the requirements on driveways found in OCMC 16.12.035 (the number of driveways, width of driveways, or spacing of driveways), the modification is processed through a Type I Decision through the Engineering Group using the Public Improvement Modification Application (see Appendix B).

C. In either case, the five criteria in OCMC 16.12.013 shall be met, or the modification request will be denied. An appeal of denial is allowed per OCMC 17.50.190.

2.1.3 Americans with Disability Act (ADA) Modifications

All project designs shall comply with Title III of the Americans with Disabilities Act (ADA) of 1990 and the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG). The City uses the PROWAG standards for ADA accessibility within the public rights-of-way and easements under the City's jurisdiction. PROWAG justifies modifications to the standards for new construction and alterations to existing ADA accessibility features. Modifications are required for any accessibility feature that cannot meet the requirements due to a physical constraint identified in the following sections. Crosswalk closures are also reviewed under the ADA modifications process.

2.1.3.1 Modifications for New ADA Accessibility Features

Modifications to full compliance with PROWAG standards can only be granted for a limited number of physical constraints preventing full compliance. If a modification is required for a particular feature, efforts shall be made to ensure that other elements are accessible. Modifications for non-compliance PROWAG standards for new ADA

accessibility features can only be approved when full compliance cannot be achieved due to terrain or historic features. Where the Historic Review Board determines that compliance with a requirement would threaten or destroy historically significant features of a qualified historic facility, compliance is required to the extent that it does not threaten or destroy the facility's historically significant features (PROWAG R202.3.4).

2.1.3.2 Modifications for Alterations to Existing ADA Accessibility Features

Where existing physical constraints make it impracticable for altered facilities to fully comply with ADA requirements, compliance may not be required within the scope of the project. Existing physical constraints include but are not limited to underlying terrain, right-of-way availability, underground structures, adjacent developed facilities, drainage, or the presence of a notable natural or historic feature (PROWAG R202.3.1).

2.1.3.3 ADA Modification Request Submittal

Modification requests must be submitted using the ADA Modification Request form (see Appendix B) at the following points in the process:

A. Requests for modifications to waive the requirement for a new ADA accessibility feature as part of a private development should be submitted and acted upon before land use approval since land use conditions are typically written with little or no flexibility.

B. Requests for modifications to requirements for a particular element should be submitted during the first plan review and shall be acted upon before permit issuance.

C. Requests for modification to requirements may be submitted during construction if physical constraints that were not included in the design are identified. In such situations, the Engineer of Record or City Project Manager shall prepare a revised design that maintains accessibility to the greatest extent practicable, and that modification shall be acted upon before constructing the accessibility feature.

D. Modifications should not be provided for non-compliant features after construction.

The City Engineer will review all modification requests and approve or deny the requested modification.

2.2 PERMITTING/APPROVAL PROCESS

2.2.1 Private Development

The contract plans developed for the project act as the permit documentation required. For additional details and requirements on private development, refer to the OCMC 17.50.

Permits for private development are valid for three (3) months. If construction has not begun on site improvements or public improvements within three (3) months of approval, plans and documents are subject to additional review and revisions to meet any standards that have been updated since the time of plan approval. Installation of erosion and sediment control or early grading do not constitute the beginning of construction.

Approval of plans does not constitute a prefect adherence to these standards. Approval constitutes the City's best review of the plans at the time. While revisions are expected to be kept to a minimum, the City may require additional revisions during construction if standards are found to not be adhered to onsite or in the permitted plans.

2.2.2 Capital Improvement Projects

City capital project permitting and bond requirements are contained in the contract documents for each project.

2.3 CONSTRUCTION INSPECTION

2.3.1 Private Development

The Applicant shall provide the City with access to the facility for inspection of the work in accordance with the requirements and intent of the plans, specifications, permit conditions, and land use requirements (collectively known as "the permit"). Refer to the OCMC and Private Development Minimum Inspection Requirements for additional information and the checklist form on the City's website (shown in Appendix C).

2.3.2 Capital Improvement Projects

City capital project inspection requirements are contained in the contract documents for each project.

2.3.3 General Requirements

A. The City's Construction Inspector shall be present at all public improvement inspections as noted on the Private Development Minimum Inspection Requirements.

B. The City's inspection services do not relieve the Engineer of Record or Contractor of their responsibility to properly comply with these *Standards*.

C. City inspection services do not constitute approval of any modification to the approved construction plans.

2.3.3.1 City Responsibilities

Inspection services provided by the City Construction Inspector include:

A. Acting as a liaison between the designated Engineer of Record and the City.

B. Monitoring both work progress and performance testing results.

C. Performing administrative and coordination activities as required for supporting the processing and completion of the project.

D. Issuing a Stop-Work Order by notice to the designated Engineer of Record, Contractor, and Applicant, if required.

2.3.3.2 Applicant Responsibilities

Refer to the Oregon City Minimum Guidelines for Inspection/Observation and Construction of Public Improvements. Inspection services provided by the Applicant include:

A. Obtaining and using a copy of City-approved construction plans and specifications (the permit) and a copy of these *Standards*.

B. Reviewing and approving all pipe, pavement, concrete, and other materials to ensure compliance with City *Standards*.

C. Approving all plan or specification changes in writing and obtaining City approval (see City Inspection Services above). The City must re-approve all changes to the approved plans or specifications before commencing work affected by the revision.

D. Monitoring construction activities to ensure work meets City specifications.

E. Performing (or having performed) material, composition, and other tests required to ensure City specifications are met.

F. Providing inspection reports to the City at the end of each week.

G. Certifying that all necessary public improvements have been installed and accepted in compliance with the City-approved permit construction plans. This certification should take place before requesting building occupancy on commercial, multi-family, and/or other projects with concurrent site development and building permits or before platting of subdivisions or partitions. This certification must also indicate that all items required through the land use process—including but not limited to the payment of all fees, recording of all public utility easements, and obtaining maintenance bonds—have been completed at or before occupancy of the first building or recording of the plat.

2.4 ACCESS MANAGEMENT

This section includes general requirements for access management and the City's access spacing standards. Refer to OCMC 17.52.090 for loading area requirements.

2.4.1 General Requirements

Access management for private accesses or public intersections is required to improve the safety and efficiency of traffic flow for transportation network users and to balance those needs with livability, economic, and community values. Managing roadway access benefits the overall roadway system by increasing safety, reducing conflicts for all users, increasing capacity, and reducing travel times. Controlling access must not become too restrictive; however, local businesses and homeowners deserve access to the roadway system. Overall, access management must balance the needs of through traffic, localized traffic, and pedestrians and bicyclists on a particular roadway.

The location and number of roadway intersections and other access points must be planned, coordinated, and controlled by the City. By the nature of the roadway functional classification system, higher-speed arterial streets require the highest level of access management restriction and tend toward less access. Lower-speed collector streets and connector streets require less restrictive access management. Local streets require very few access management restrictions and tend toward more frequent access.

Accesses are subject to the sight distance standards outlined in Section 3.5, and non-compliant accesses may not be approved. To comply with these requirements, existing accesses may require removal or modification due to safety issues.

2.4.2 Access Spacing Standards

The Oregon City TSP identifies the minimum and maximum street intersection spacing and minimum driveway spacing standards for streets in Oregon City (shown in Table 2-1). Additional information on driveway spacing requirements is described in the OCMC 16.12.035. Per OCMC 16.12.035, the distance from a street corner to a driveway is measured along the right-of-way line from the edge of the intersection (on the same side of the road) to the nearest portion of the driveway. The distance between driveways is measured at the nearest portions of the driveways (or from edge to edge). Block spacing between streets is measured between the right-of-way centerlines.

Any changes to the spacing standards require a Type I Driveway Modification, further described in Section 2.1. Additional City plans, such as the *Beavercreek Road Access Management Plan*, provide additional information on driveways that will be closed and combined.

Table 2-1: Spacing Standards

	Mixed-Use or Residential				Commercial or Industrial			
	Major Arterial	Minor Arterial	Collector	Local	Major Arterial	Minor Arterial	Collector	Local
Maximum Block Size (Street to Street)*	530’	530’	530’	530’	530’	530’	530’	530’
Minimum Block Size (Street to Street)	150’	150’	150’	150’	150’	150’	150’	150’
Minimum Driveway Spacing (Street to Driveway and Driveway-to-Driveway)**	175’	175’	100’	25’	225’	225’	150’	25’

* Maximum except in zones General Industrial (GI), Campus Industrial (CI), Mixed Use Employment (MUE), Institutional (I), and Willamette Falls Downtown District (WFDD), where appropriate street spacing will be determined by the City Engineer. If the maximum block size is exceeded, midblock pedestrian and bicycle accessways must be provided at spacing no more than 330 feet, unless the connection is impractical due to existing development, topography, or environmental constraints. Alternatively, off-street pedestrian and bicycle accessways spaced 500 feet from a street may supplement block lengths exceeding 530 feet.

**Single-family dwellings are exempt from the driveway-to-driveway spacing standard.

When a property is zoned MUC-1, driveways for loading zones shall be separated from customer/employee access driveways when feasible. Access spacing is exempt for those properties and should be coordinated with the City Engineer (as determined by the City Engineer).

2.5 RIGHT-OF-WAY AND PUBLIC EASEMENTS

Refer to the City of Oregon City Municipal Code, which takes precedence if conflict exists within these *Standards*. Projects that do not meet the standards noted in this section and in the Code require a Design Modification (Refer to Section 2.1).

2.5.1 Requirement for Right-of-Way and Public Easements

As a condition of approval for a development, the City may require dedicating additional road right-of-way or other public easements in support of the proposed development to meet standard cross sectional elements. The City will determine the right-of-way and easement widths and types after reviewing the development with the requirements for dedications identified via land use requirements or as identified in the dedication review processes.

2.5.2 Minimum Width Requirements for Rights-of-Way and Easements

A. Definition of standard road right-of-way widths by roadway functional classification is provided in OCMC 16.12.016 for required typical sections.

B. Some corridor plans and concept plans require road designs specific to certain areas. Details specific to these can be found in the respective plans. Contact the City Engineering Group to verify details and standards for those areas.

C. If dedicating a Permanent Public Utility Easement (PUE) or a combination of another easement that includes a PUE is required, an easement must be dedicated along the entire abutting right-of-way of all front lot lines (see Section 8.3).

D. Additional easements for signing, slopes, and pedestrian facilities may be required via land use requirements or during construction plan review. This should also be considered for CIP projects.

2.5.3 Right-of-Way and Public Easement Dedication Process

Refer to OCMC 16.12.085 for details on the public rights-of-way and easement dedication processes and types of easements. Also refer to the Street and Easement Vacation Standard Operating Policy and Procedure. An overview of the process is below.

A. Typical easements that may be required for dedication may include but are not limited to:

   1. Permanent Right-of-Way Dedication
   2. Permanent Public Utility Easement (see Section 8.3)
   3. Permanent Sign, Slope, Public Utility, and Sidewalk Easement
   4. Permanent Storm Drainage, Sanitary Sewer, or Water Easement (See Section 8.3)
   5. Temporary Construction Easement
   6. Unusual Facility Easement
   7. Watercourse Easement
   8. Resource Protection Easement

B. Depending on the project's requirements, one or more of the above easement dedications may be required.

C. An Applicant may be required to provide proof of recorded access from a public road or public easement through the proposed development to an abutting parcel.

D. If proof of access easement cannot be provided or has not been previously created, then an Applicant will be required to dedicate a permanent public easement for the benefit of the abutting parcel on the face of the plat.

2.5.4 Street, Alley, and Easement Vacations

A street vacation is the termination of the public interest in a right-of-way, and it extinguishes the easement for public travel that the right-of-way represents. Whenever any street, alley, or public way is vacated by official action, the zoning districts adjoining the side of such public way shall automatically be extended to the side or sides to which such lands revert to include the right-of-way thus vacated, which shall henceforth be subject to all regulations of the extended district or districts. Refer to OCMC 17.06.035.

The following factors will be evaluated when considering whether the vacation will impact the public interest:

A. The area proposed to be vacated is not presently needed and is not identified in any adopted plan for public services, transportation functions, utility functions, stormwater functions, view corridors and/or viewpoints, tree planting/retention, pedestrian amenities, community uses, or commercial uses.

B. The vacation does not prevent the extension or retention of public services, transportation functions, utility functions, stormwater functions, view corridors and/or viewpoints.

C. Public services, transportation functions, or utilities can be extended in an orderly and efficient way in another location.

D. The vacation does not impede the future best use of, development of, or access to abutting property.

E. The area of the vacation is not presently (or will not in the future be) needed as part of an interconnected system of public streets that is generally consistent with the street connection and bicycle/pedestrian spacing requirements.

F. The vacation does not impact a Historic District.

When approving a petition to vacate a street, whether fully or in part, the City may make reservations or conditions, including:

A. The maintenance and use of underground public utilities or service facilities in the portion vacated.

B. Limits to using the area above and adjacent to underground utilities or service facilities.

C. Moving the utility or service facilities either below, on, or above the surface at the petitioner's expense.

D. Constructing, extending, or relocating sidewalks and curbs, shared-use paths, trails, or other similar pedestrian or bicycle facilities.

E. Grading or pavement extensions.

F. Dedication for street use or another area instead of the area to be vacated.

G. Replat.

H. Any other matter of like or different nature relating to the vacated area and remaining or relocated street area adjacent to the petitioner's property or area dedicated instead of the vacation area.

See Street and Easement Vacation Standard Operating Policy and Procedure for further information about policy and process of street and alley vacations.

2.5.5 Annexations

All annexations shall include the adjacent existing roadway in total. Annexations shall not stop at the centerline.

2.5.6 Obstructions

It is unlawful for any person to place or maintain any obstruction (permanent obstruction) other than a temporary obstruction in any public street or alley in the city without obtaining approval for a right-of-way permit from the City Commission by passage of a resolution.

A temporary obstruction is defined as an object placed in a public street, sidewalk, road, or alley that is not permanently anchored to another surface, such as the pavement, the sidewalk, or a building. A temporary obstruction includes but is not limited to moving containers, debris dumpsters, and seating. A short-term temporary obstruction is allowed for a period of no more than 60 consecutive calendar days and is permitted with a temporary obstruction in the right-of-way permit. A long-term temporary obstruction is allowed for no more than 1 year, and it is permitted with a renewable right-of-way permit.

To allow the City Commission to adequately consider whether to allow the placement of an obstruction and whether any conditions may be attached, the following information is required:

A. Site plan showing right-of-way, utilities, and driveways.

B. Sight distance per OCMC 10.32, Traffic Sight Obstructions.

C. Traffic control plan including parking per the MUTCD.

D. Alternative routes (if necessary).

E. Minimized obstruction area.

F. Hold harmless/maintenance agreement.

If the City Commission adopts a resolution allowing the placement of a permanent obstruction in the right-of-way, the City Engineer shall issue a right-of-way permit with any conditions deemed necessary by the City Commission. Signage that acts as an obstruction is approved through OCMC 15.28. While awnings are considered an obstruction, they may be allowed if the conditions in the Awning Standard Operating Procedure is met.

In determining whether to issue a right-of-way permit to allow a temporary obstruction, the City Engineer may issue such a permit only after finding that the following criteria have been satisfied:

A. The obstruction will not unreasonably impair the safety of people using the right-of-way and nearby residents.

B. The obstruction will not unreasonably hinder the efficiency of traffic affected by the obstruction.

C. No alternative locations are available that would not require use of the public right-of-way.

D. ADA standards are maintained.

E. Any other factor that the City Engineer deems relevant.

OCMC 12.04.120 outlines requirements for temporary and permanent obstructions.

2.6 SURVEY/MONUMENTATION

The *Oregon Standard Specifications for Construction* and ORS 209.140155 define the requirements for the protection of existing survey monuments during any construction and the setting of new survey monuments following the construction of new roadways.

Refer to the *Clackamas County Roadway Standards*, Section 150 for Survey and Monumentation standards.

2.7 HISTORIC DISTRICTS AND DOWNTOWN

Oregon City has two local historic districts:

A. McLoughlin Conservation District

B. Canemah National Register District

Additional information for each district is provided at the districts' websites. OCMC 17.40 provides information on the Historic Overlay District for the City, including construction details for projects within this area. Refer to the Historic Design Guidelines for New Construction.

Downtown Oregon City is not a Historic District, but the downtown has specific guidelines to preserve this area. According to the 1999 *City Downtown Plan*, the City intends to verify that new construction and improvements are guided by a set of historic design guidelines that enhance and preserve this part of the City. Within this area, pedestrian-oriented design features are emphasized, including:

A. Pedestrian crossings

B. Street furniture

C. Wider sidewalks

D. River viewpoints

E. Decorative railings

3.0 GEOMETRIC DESIGN

Chapter 3 provides the geometric building blocks for planning and designing a road by describing the typical cross section elements, outlining parameters associated with horizontal and vertical alignments, providing an overview of intersection design, discussing various sight distance needs, highlighting the assessment of roadside design, and providing features for traffic calming and additional design features. This chapter is consistent with the geometric design principles outlined in the AASHTO *Green Book* and the ODOT *Blueprint for Urban Design*. If the guidance in this section cannot be obtained, then a design modification is required for approval by City Engineer.

3.1 CROSS SECTION

Typical roadway cross sections vary based on functional classification. Roadway functional classifications are established in the Oregon City TSP. Table 16.12.016 from OCMC 16.12.016 implements the Oregon City TSP and illustrates the maximum design standards. These standards may be reduced with an alternative street design, which may be approved based on the modification criteria in OCMC 16.12.013. and Std. Dwgs. OC500-OC502 for required typical sections. For the Downtown District, Washington Street, 7th Street, and Molalla Avenue, refer to Section 5.8. When required as a condition of development, half-street improvements must include the entire area between the centerline and the edge of right-of-way. Table 3-1 provides general guidance and an overview on the typical uses for each cross sectional element and where to find additional information.

Table 3-1: Typical Uses for Cross Sectional Elements

Cross sectional Element	Description
Travelway	Travelway width varies by functional classification—see Std. Dwg. OC 500-OC502. The number of travel lanes is determined by the Oregon City TSP.
Two-Way Left-Turn Lane/Median	Medians are to provide for left-turn lanes (e.g., two-way left-turn [TWLT]) as needed and used only on collector and arterial streets. Medians can be narrower if there is no need for left-turns and/or refuge islands for pedestrian crossings. Medians can be raised and landscaped; rocked medians should be provided in locations that need sight distance and where pedestrian crossings are present. Section 10.0 provides information on landscaped medians. Refer to Oregon City area-specific planning documents for guidance on where medians are required. Medians (and sometimes "pork chop" islands) are also used for access management purposes and to prohibit specific movements (e.g., right-in/right-out).
Parking	On-street parking shall be parallel along the curb per OCMC 16.12.016. Angled on-street parking is discouraged and shall only be implemented on a case-by-case basis with City Engineer approval.
Bicycle Facilities	Bicycle facilities are required on all roads City streets classified as collector streets or higher. The standard bicycle lane width is 6 feet based on the OCMC. However, when possible, it is desirable on collectors and arterials to have on-street buffered bicycle lanes (6-foot bicycle lane with a 2-foot buffer). Separated bicycle facilities may be necessary in higher-speed environments to improve bicyclists' safety and comfort. The minimum bicycle facility requirement is on-street buffered bicycle lanes, but the preferred solution is to provide separated bicycle facilities. ~~Bicycle facilities are required on all roads classified as a collector streets or higher. The minimum requirement is on-street buffered bicycle lanes, but the preferred solution is to provide separated bicycle facilities.~~ Alternative applications may include raised bicycle facilities or shared-use paths. For guidance, refer to Oregon City area-specific planning documents, such as the Oregon City TSP, which outlines future bicycle route connectivity throughout the City. ~~For bicycle facility design, refer to FHWA's *Separated Bike Lane Planning and Design Guide* and the ODOT *Blueprint for Urban Design*, which provide additional design and facility selection guidance.~~
Curb and Gutter	The Std. Dwg. OC511 requires a 6" curb with an 18" gutter.
Landscaping	When required, landscaping can be installed on medians or between the curb and sidewalk. See Std. Dwg. OC530 for street tree planting details and OCMC 12.08 for street tree requirements. Refer to Chapter 10 for additional landscaping details.
Sidewalks	Typical sidewalk widths shall be per OCMC 16.12.016, Oregon City concept plans or other adopted plans.

3.1.1 Lane Widths

The Oregon City TSP provides guidance on how to determine lane widths based on functional classification. The City has four key considerations when deciding lane widths:

A. Lane widths should be kept as narrow as possible.

B. Wider lane widths should be considered when the mix of heavy vehicles is greater.

C. When no bicycle facility or shoulder is present, a shy distance from a vertical curb should be considered.

D. If the purpose of the design is a lower-speed environment, narrower travel lanes should be selected.

Oregon City TSP provides additional information on determining the lane arrangement and width of the street based on functional classification and potential route designations, such as freight and transit routes, as summarized below.

A. Streets along regional and local truck routes should have a minimum lane width of 12 feet.

B. A minimum lane width of 11 feet is required along a transit route.

C. If the street is not along a designated route, the lane width can be reduced to a minimum of 12 feet along major arterials, 11 feet on minor arterials, and 10 feet along collectors and local streets, as determined by the City.

3.1.2 Constrained Street Section

Allowable applications and reduced cross section widths may be considered for local streets only if determined by the City Engineer. The following potential scenarios will be evaluated on a case-by-case basis:

A. Constructing the standard street width would cause excessive impacts to adjacent businesses and/or homes.

B. Constructing the standard street width is impractical based on topographical impacts (i.e., retaining walls or cut/fill would be required).

C. Constructing the standard street width would unnecessarily impact environmentally sensitive areas.

For all cases, the City Engineer shall approve documentation through the design modification and public improvement modification process.

The AASHTO *Green Book* provides guidance for vertical and horizontal roadway elements. For constrained areas, the Engineer of Record and/or the City Project Manager should follow the principles from the *Green Book* and consider various dimensions for roadway cross sections to minimize impacts.

In addition, the practitioner should assess the *Oregon Fire Code Applications Guide*, Clackamas Fire District #1 to determine if sufficient width (i.e., 20 feet of unobstructed driving surface) exists to accommodate parked vehicles. Parking should be prohibited accordingly. A design modification from the typical standard widths require approval by the City Engineer.

3.1.3 Parking (On-Street)

On-street parking may be added in urban environments if approved or required by the City. The City standard is parallel parking in public right-of-way along the curb, and it requires the least paved width. Angled on-street parking may only be considered if there is adequate street width; speeds are below 25 mph; and other constraints, such as environmental, topographical, or other unique circumstances exist. Angled parking should be processed as a design modification to be approved by the City Engineer. The location of bicycle lanes should be carefully considered in areas with on-street parking. Separated bicycle facilities or shared-use travel lanes may be considered as discussed in Section 4.2.

On-street parking is required on both sides of the street in all street designations as outlined in OCMC 16.12.016. On-street parking may be restricted for safety and/or functionality. When determining the locations of on-street parking, designers should consider sight distance, delivery access, and emergency access for existing and proposed development along the street. Where on-street parking is provided, curb extensions should be provided at intersections and midblock crossings to minimize crossing distance.

To preserve safe sight distance, on-street parking is prohibited within 15 feet of the intersection and the accessway with public streets (OCMC 16.12.032).

3.2 HORIZONTAL ALIGNMENT

All roadway designs shall comply with the guidance in the current edition of the AASHTO *Green Book*, except as modified by this section. Centerline alignment of improvements should be parallel to the centerline of right-of-way.

3.2.1 Horizontal Curves

Requirements for horizontal curves include:

A. Horizontal curves should meet the minimum radius requirements in Table 3-2.

B. Reversing horizontal curves should be separated by at least 50 feet of tangent (100 feet on arterials).

C. Horizontal curves should be designed using a maximum superelevation rate of 4% (emax=4%). See Section 3.3.2 for superelevation standards.

Table 3-2: Minimum Curve Radii

Design Speed (mph)	Minimum Curve Radius (ft) for Various Cross Slopes			
	(e) -2.5%	(e) 0%*	(e) 2.5%*	(e) 4%*
15	50	45	45	40
20	100	90	85	80
25	185	165	150	145
30	305	275	245	230
35	475	415	370	345
40	700	600	525	490
45	980	830	720	665

*Use of superelevation requires City approval.

3.2.2 Exceptions for Very Low-Volume (≤400 ADT) Local Streets with a Speed of 25 Miles Per Hour (mph) or less

The following are allowed under the listed circumstances on a limited basis:

A. Horizontal curves on local roadways within residential areas may have a minimum centerline radius of 100 feet, as limited in this section.

B. A single 15 mph maneuver is allowed on a local road on a limited basis when physical constraints or property boundary limitations exist.

C. Residential driveways that serve no more than three lots, are less than 400 feet in length, or have topographic constraints may use a 50-foot centerline radius for a 12-foot width or a 40-foot centerline radius for a 20-foot width. Approval from the City Engineer and emergency services provider are required.

3.2.3 Roadway and Marking Transitions

Shifts in roadway alignment, widening, or narrowing within motor vehicle travel lanes are to be accomplished through roadway transitions as described below.

A. Roadway transitions within through lanes:

$$L = S \times W \qquad (S \geq 45 \text{ mph})$$
$$L = WS^2/60 \qquad (S < 45 \text{ mph})$$

where L = minimum taper length (feet)
S = design speed (mph)
W = offset (shift) width (feet)

B. Tapered widening for right-turn lanes at intersections should be designed according to the ODOT *Highway Design Manual* detail for "Right Turn Channelization."

C. Tapered widening for left-turn lanes at intersections should be designed according to the ODOT *Highway Design Manual* for "Left-Turn Channelization."

D. For road widening to develop left-turn lanes, horizontal curves and tangents for the through lane may be substituted for the straight tapered widening noted above, provided that the curves and tangents meet horizontal alignment requirements for the given design speed of the roadway.

E. Along local and connector roads, roadway width transitions are not required if traffic is not expected to use the shifting roadway (e.g., at the beginning or end of street frontage improvements).

3.3 VERTICAL ALIGNMENT

The vertical alignment of the City's public and private roadways should conform to the following requirements:

A. **Minimum Roadway Gradient:** The minimum tangent roadway gradient should be 0.5% along the crown and vertical curb line. The gradient along the curb return at the sidewalk ramp landing shall be designed to 0.5–1.5%.

B. **Maximum Roadway Gradient:** The maximum roadway gradient is based on the adjacent land use contexts and should be 8% for commercial areas and 15% for residential areas.

C. **Intersection Landing:** At intersections, a landing should be provided on the secondary or subordinate approach or on a stop-controlled approach.

1. Landings should be 20 feet in length for private driveways, 50 feet in length for local roadways, and 100 feet in length for all other roadways.
2. Landings should be measured from the edge of pavement of the intersected roadway at full development and shall have an average grade no greater than 5%.
3. Cross slopes of the landings of both roadways should be flattened so that the pedestrian crossing is ADA compliant.

3.3.1 Vertical Curves

A. Vertical curves should be used when design grade breaks of more than 1% are necessary. Grade breaks may be allowable on the side street and would need to be approved by the City Engineer, depending on a lower road hierarchy.

B. The minimum vertical curve length should be 50 feet for the mainline street and 20 feet for the side street approach.

C. Vertical curves shall conform to the values in Table 3-3 and be calculated according to the formulas below. K-Sag values may be reduced to K-Crest values if adequate street lighting is present along the entire sag vertical curve.

$$K = L / A$$

where A = algebraic difference in grades (percent)

L = length of vertical curve (feet)

Table 3-3: Design Control for Crest and Sag Vertical Curves

Design Speed (mph)	Minimum Rate of Vertical Curvature (K)	
	Crest	Sag*
15	3	10
20	7	17
25	12	26
30	19	37
35	29	49
40	44	64
45	61	79

*Values are for roadways where street lighting is not present. The City may accept a lower K value for sag vertical curves if the roadway design includes lighting. The Engineer of Record shall calculate for the minimum-length curve based on comfort ($L=AV^2/46.5$).

3.3.2 Cross Slope and Superelevation

A. Roadway cross slope should be no less than 2.5% and no greater than 4%. If existing conditions require different cross slopes, approval by the City Engineer is required. Intersection grading requirements are shown in Section 3.4.1.5.

B. Design elements for superelevation should be based on the AASHTO *Green Book*.

C. Superelevation is not allowed on roadways with a design speed of 35 mph or less.

D. The maximum rate of roadway superelevation for urban conditions should be 4% ($e_{max} = 0.04$).

E. The use of superelevation in the urban area is discouraged, and the City shall approve its use.

F. Street grades, intersections, and superelevation transitions should be designed to prevent concentrations of stormwater from flowing across the travel lanes.

G. On portland concrete cement (PCC) roadways with an odd number of lanes, the crown should be offset to a lane line to prevent locating a joint in the middle of a traffic lane.

3.4 INTERSECTIONS

The City uses various intersection control types based on the context and projected traffic volumes of the intersecting roadways.

Table 3-4 describes typical intersection control types. See Section 5.3 for additional guidance on analyzing and selecting the appropriate intersection control.

Table 3-4: Typical Intersection Control Types

Traffic Control/Intersection Form	Definitions
Two-Way Stop-Control (TWSC)	At TWSC intersections, the stop-controlled approaches are on the minor street, and the free-flowing approaches are on the major street. At TWSC intersections, drivers must find gaps in the major street traffic to make a turning or through movement. See the Oregon City Public Works *Stop Sign Brochure* for more information.
All-Way Stop-Control (AWSC)	AWSC intersections require every vehicle to stop at the intersection before making a turning or through movement. If other vehicles are present at the intersection, a driver may only proceed after determining that there are no other vehicles in the intersection and that it is their turn. See the Oregon City Public Works Stop Sign Brochure for more information.
Yield	A yield-controlled intersection requires vehicles to slow down and give way to all other traffic going through the intersection. If no other traffic is present at the intersection, a driver may slow down but not stop before entering the intersection.
Traffic signal	Traffic signals are electrically operated traffic control devices that indicate to roadway users when they may advance through the intersection. Traffic signals allow the shared use of road space by separating conflicting movements.
Roundabout	A roundabout is a generally circular intersection form that uses yield-controlled approaches for all legs of the intersection. Drivers must slow down prior to entering the roundabout and give way to vehicles that are in the roundabout.

3.4.1 Intersection Geometry

Intersection geometry outlines design guidance for the following elements:

A. Design vehicle

B. Tangent approach

C. Curb radii

D. Intersection angle

E. Vertical geometry

F. Sidewalk ramps

G. Turn lanes

H. Pedestrian refuge islands

I. Roundabouts

3.4.1.1 Design Vehicle

The Engineer of Record and/or City Project Manager shall determine the appropriate design and control vehicles for a facility. Definitions and information for both vehicles are provided below.

A. **Design vehicle:** Frequently uses a facility and must be designed without encroaching into adjacent and opposing traffic lanes (e.g., turning lane to lane).

B. **Control vehicle:** Infrequently uses a facility, but encroachment into opposing traffic lanes, multiple-point turns, or minor encroachment into the roadside is acceptable (e.g., using available pavement).

C. The project may be required to provide evidence that the designs can accommodate both the design vehicle and the control vehicle.

D. Functional classification, safety, and roadway use all play a role in determining the acceptability of lane encroachment by control vehicles. For example, on a local road, full lane encroachment by a control vehicle may be acceptable if sight distance is adequate. However, on a major arterial, such encroachment may not be permitted.

E. In urban and constrained contexts, coordinate with the City Engineer to determine how trucks will be accommodated and/or designed for at intersections.

Figure 3-1a illustrates the path of a design vehicle. Figure 3-1b illustrates the path of a control vehicle.

Figure 3-1a: Design Vehicle Path

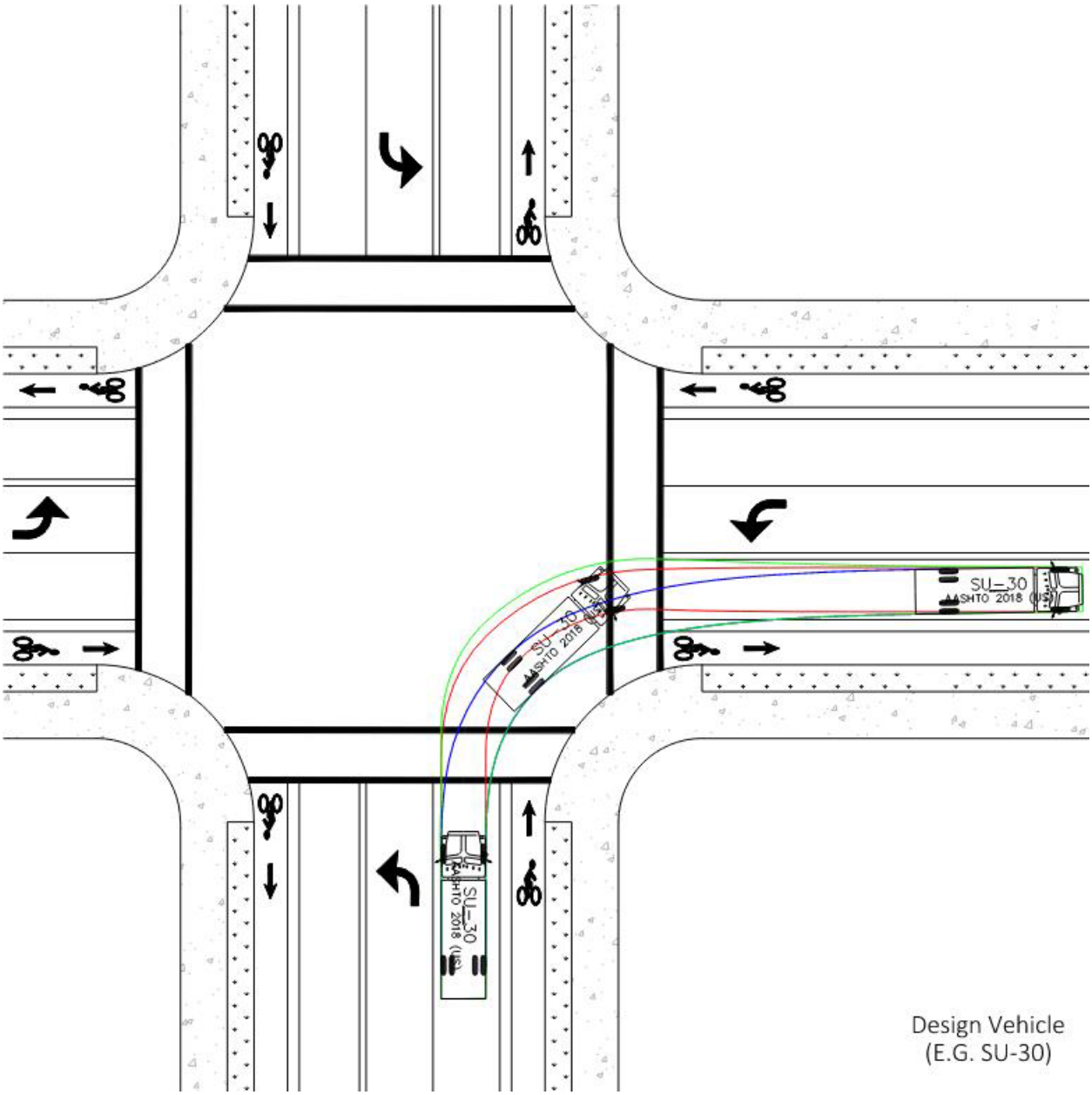
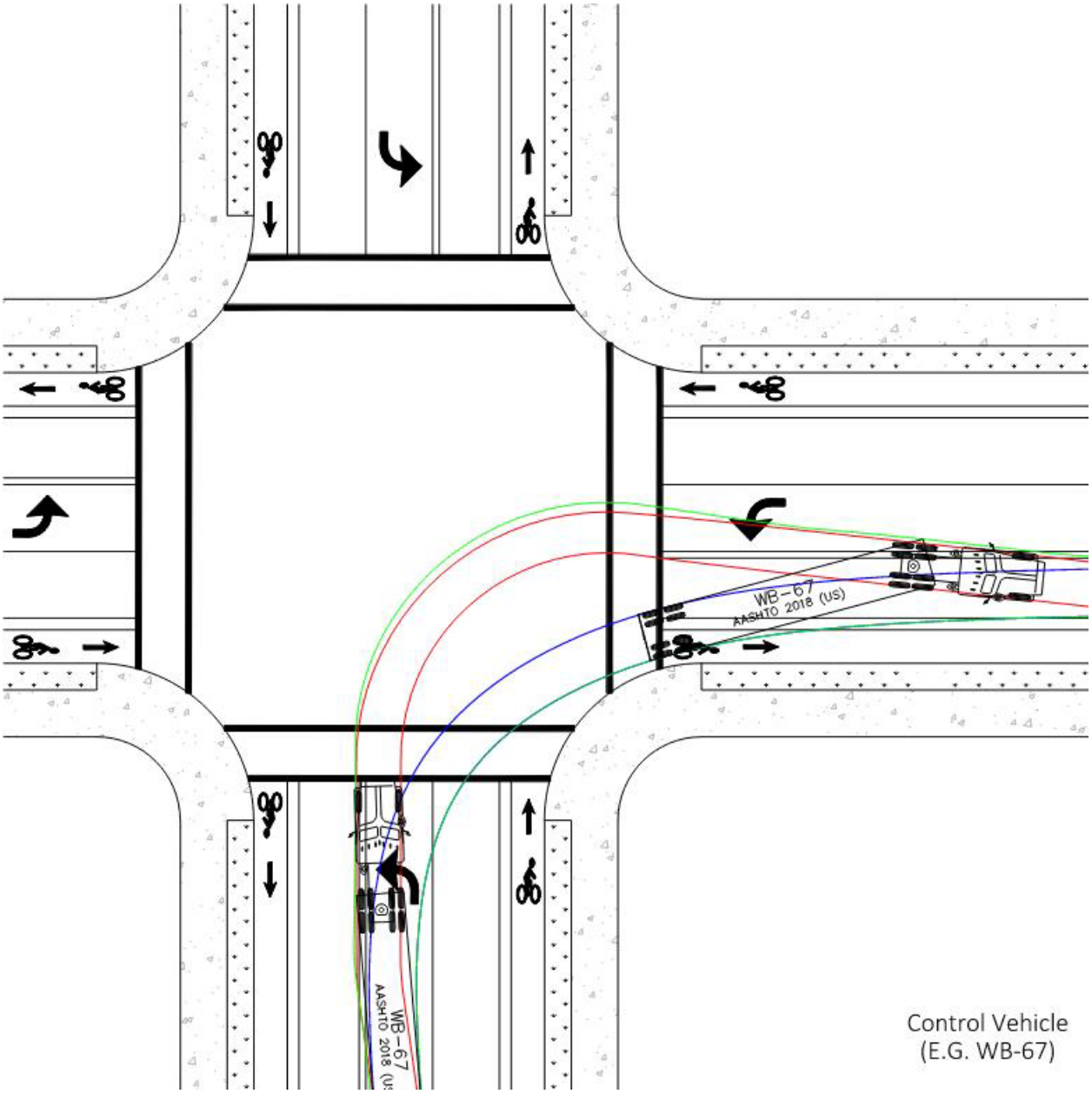


Figure 3-1b: Control Vehicle Path



3.4.1.2 Curb Radii

The minimum curb radii at intersections shown in Table 3-5 are for new roads. Larger curb radii may be required along designated truck routes based on an assessment of design vehicles; smaller curb radii may be allowable based on the land use context. Additional requirements for curb radii are described below.

A. Verify that corner radii provide maneuverability for emergency response vehicles (refer to City Fire Code).

B. Curb radii shall be approved by the City Engineer based on an assessment of design and control vehicle considerations as well as pedestrian and design speed considerations.

C. The minimum right-of-way radii shall maintain at least the same distance from right-of-way to edge of pavement or curb as the lower classified roadway.

D. In Table 3-5, if a designated bicycle lane or on-street parking exists on either intersecting roadway, then the initial radii may be reduced by 5 feet.

Table 3-5: Minimum Curb Radii

Major Roadway	Intersecting Roadway (ft)			
	Major Arterial	Minor Arterial	Collector	Local
Major Arterial	35’	35’	30’	25’
Minor Arterial	N/A	30’	30’	25’
Collector	N/A	N/A	25’	25’
Local	N/A	N/A	N/A	25’

3.4.1.3 Tangent Approach

To improve intersection safety, new intersections should conform to the tangent requirements of OCMC 16.12.020 unless otherwise approved by the City Engineer. Tangent sections are shown in Table 3-6.

Table 3-6: Tangent Sections

Major Roadway	Intersecting Roadway (ft)				
	Major Arterial	Minor Arterial	Collector	Local	Private Access
Major Arterial	100’	100’	100’	100’	100’
Minor Arterial	N/A	100’	100’	100’	100’
Collector	N/A	N/A	100’	50’	50’
Local	N/A	N/A	N/A	50’	50’

3.4.1.4 Intersection Angle

The intersection angle at intersecting roadways shall be as close to 90 degrees as possible. Intersection angles from 80 degrees to 100 degrees may be considered if approved by the City Engineer. Intersections with a skew angle of more than 10 degrees from a right angle are not allowed unless a design modification is prepared and approved by the City Engineer.

3.4.1.5 Vertical Geometry

At stop-controlled intersections, the crown of the major (higher classification) street shall continue through the intersection. The cross slope of the minor street shall flatten to match the longitudinal grade of the major street. A grade break of 5% or less may be allowed in the profile of the minor street as it crosses the crown of the major street. At intersections where both streets have the same functional classification, the City will either determine the controlling roadway or require the intersection to be designed accordingly.

At signalized intersections—and at intersections that may be signalized in the future—the cross slope of the major roadway should be such that the profiles of both roadways are flattened to a cross slope of 0.5%. This creates a 1% grade for the opposing through traffic rather than a 5% grade break (2.5% normal crown).

At intersections, the cross-slope of both roadways should be flattened so that the pedestrian crossing is ADA compliant. Intersection landings shall be provided according to Section 3.3.

3.4.1.6 Sidewalk Ramps

Sidewalk ramps (detailed in the list below) shall be provided for all directions at each corner of every intersection unless pedestrian safety concerns warrant a crosswalk closure, which the City Engineer must approve.

A. Each street corner shall provide two directional ramps. At T intersections, the crossbar of the "T" should have two crossings equipped with ramps. All T intersections should have at least six ramps, with two ramps on each corner of the intersection. See Figure 3-2.

B. Sidewalk ramps shall be designed according to Std. Dwg. OC509.

C. See current ODOT Standard Drawings for additional ramp details. Figure 3-3 provides an example.

D. See Section 5.8.1 for information about stamped street names.

E. Sidewalk ramps shall be a minimum of 5 feet in width and designed and/or constructed according to ADA and PROWAG requirements.

F. All existing sidewalk ramps abutting a street overlay or pavement reconstruction project shall comply with ADA requirements for sidewalk ramps.

G. All crossings protected by a traffic signal shall have marked crosswalks. Marked crosswalks may be provided at other locations only when approved by the City Engineer based on a pedestrian crossing assessment.

H. Ramps located within marked crossings shall be within the striped width of the crosswalk, excluding the flared wings.

I. Where a crossing is not feasible due to topographical or safety concerns, the crossing can be closed through the approval of the City Engineer. Elimination of a crossing shall not conflict with ADA requirements. When a crossing is eliminated, alternative pedestrian routes with minimal out-of-direction travel should be provided.

Figure 3-2: Sidewalk Ramps at T Intersections

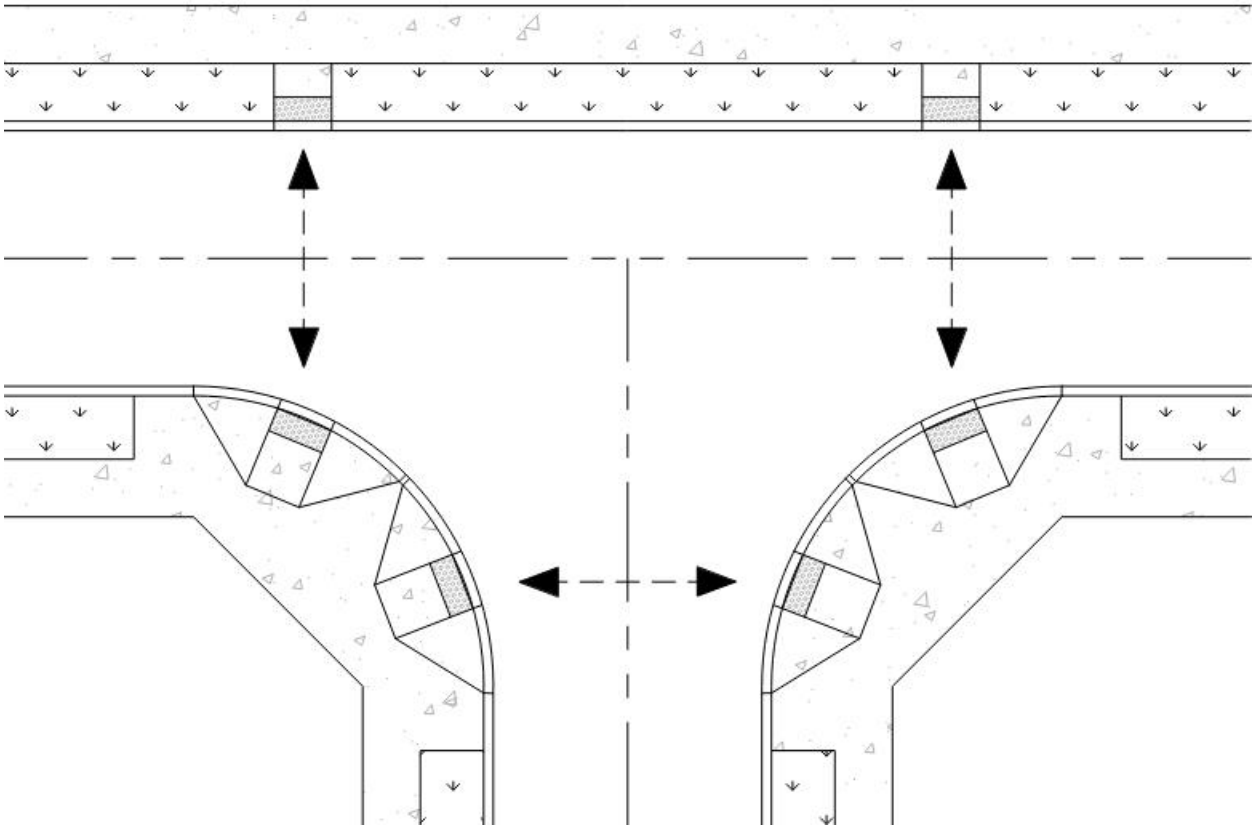
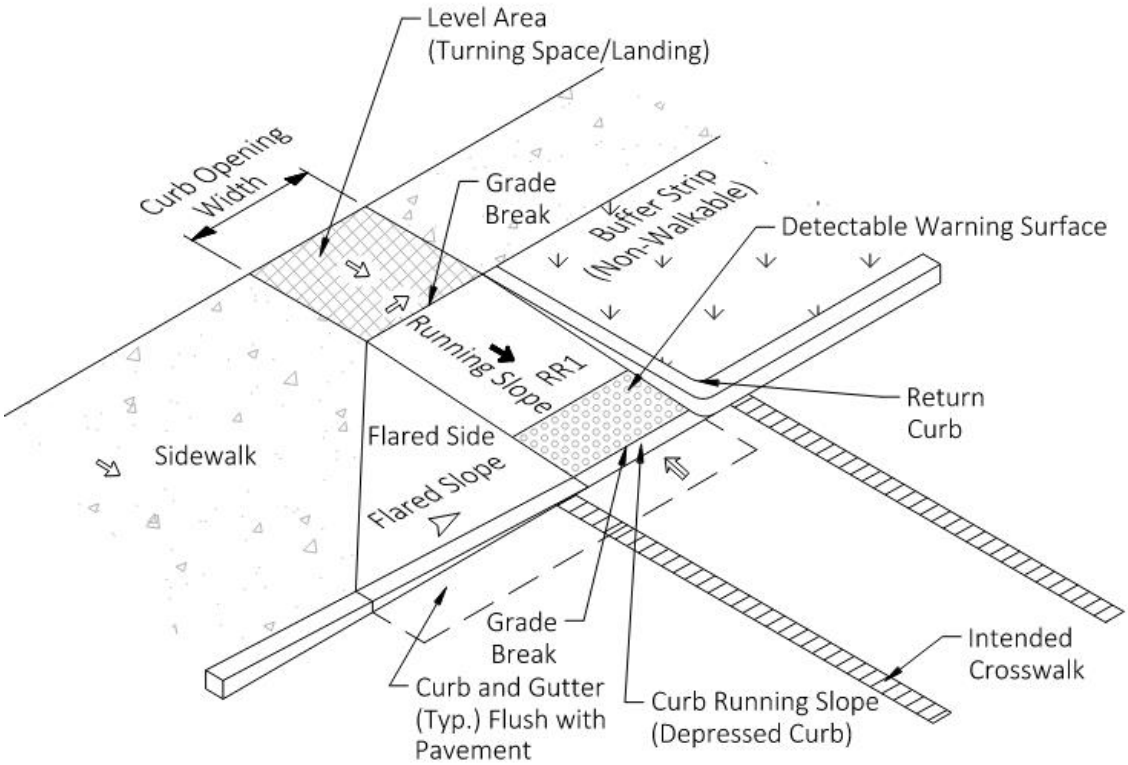


Figure 3-3: Example Ramp Details



3.4.1.7 Turn Lanes

The need for left- or right-turn lanes shall be based on a traffic operational analysis, such as a traffic impact analysis (TIA) (see Section 5.2.1), and/or as dictated by the Oregon City TSP or City Capital Improvement Program (CIP). The following general rules apply:

A. Queue storage estimates shall be based upon a traffic operational analysis.

B. Left-turn lanes, when provided, shall have a storage queue of at least 50 feet.

C. Left- or right-turn lanes shall be based on ODOT's *Highway Design Manual.*

3.4.1.8 Pedestrian Refuge Islands

Medians that are crossed by a pedestrian access route and accessible route islands shall comply with ADA requirements as identified in Oregon City ADA Design Review Checklist—Medians/Traffic Islands (See Appendix C) and depicted in Oregon Standard Drawing RD710.

3.4.1.9 Roundabouts

Roundabout geometric design requires balancing design objectives with design flexibility to achieve multimodal planning and design objectives. When their geometric features promote slow entering and circulating speeds, roundabouts have fewer and less severe collisions. Undesirable roundabout geometry negatively influences roundabout operations by affecting driver lane choice and behavior through the roundabout.

A roundabout's basic form and features are influenced by location, desired capacity, available space, required lane numbers and arrangements, design vehicle, and other geometric attributes unique to each site. Design outcomes depend on the surrounding context and associated speed environment. Compared to other contexts, rural environments may have high approach speeds and low bicycle and pedestrian use. In urban environments, where bicycle and pedestrian safety is a primary concern, roundabouts typically have significantly different design objectives.

Many design techniques are substantially different for single-lane roundabouts than for multilane roundabouts with two or more lanes. Roundabouts in unique, low-volume/speed, or constrained reconstruction locations may include combinations of traversable and non-traversable features, including splitter islands and central islands. These configurations may require special consideration compared to roundabouts with non-traversable central island features.

Roundabout design is an iterative process that must consider and balance a variety of design objectives while working within site-specific constraints. Optimizing roundabout operational performance and maximizing safety require customizing a design rather than relying on a design template.

Roundabout intersections shall be designed according to *NCHRP Report 672 Roundabouts: An Informational Guide*. Roundabout consideration per Section 5.3 should happen before the approval of a traffic signal.

Roundabouts with pedestrian facilities shall comply with ADA requirements as identified in PROWAG Section R306.3. Additional guidance on pedestrian crossings at roundabouts can be found in *NCHRP Report 834: Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities.*

3.5 SIGHT DISTANCE

Sight distance shall be determined and approved according to the procedures in the current AASHTO *Green Book* or AASHTO's *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)*. The OCMC includes additional guidance as noted in the following sections.

3.5.1 Intersection Sight Distance

Intersection sight distance (ISD) should be evaluated according to OCMC 10.32. This applies to the design of new streets and driveways as well as to the placement of any object located within or behind the public right-of-way. ISD must comply with the following guidelines:

A. No object taller than 36 inches or plant capable of growing taller than 36 inches is permitted within a sight clearance area. Poles, tree trunks, and similar objects less than 12 inches in diameter may be allowed in the sight clearance area if it can be proven that such obstructions do not prevent the continuous view of the vehicle approaching the intersecting street.

B. Tree locations should be verified so they do not obstruct visibility of signing. Trees that obstruct signing should be removed or located elsewhere.

    1. Maintain existing street tree and tree-sized shrubs located within or overhanging the public right-of-way or visual clearance zone by trimming to a minimum of 8 feet above ground level per OCMC 10.32.030.

2. Existing trees or tree-size shrubs located within or overhanging the public right-of-way shall be kept trimmed to a minimum of 10 feet above local streets or alleys.
3. Existing trees or tree-size shrubs located within or overhanging the public right-of-way shall be kept trimmed to a minimum of 12 feet above collectors and arterials.
4. Trees shall be maintained following OCMC 12.08.025.

C. Adjacent property owners are required to maintain adequate sight distance at intersections and driveways.

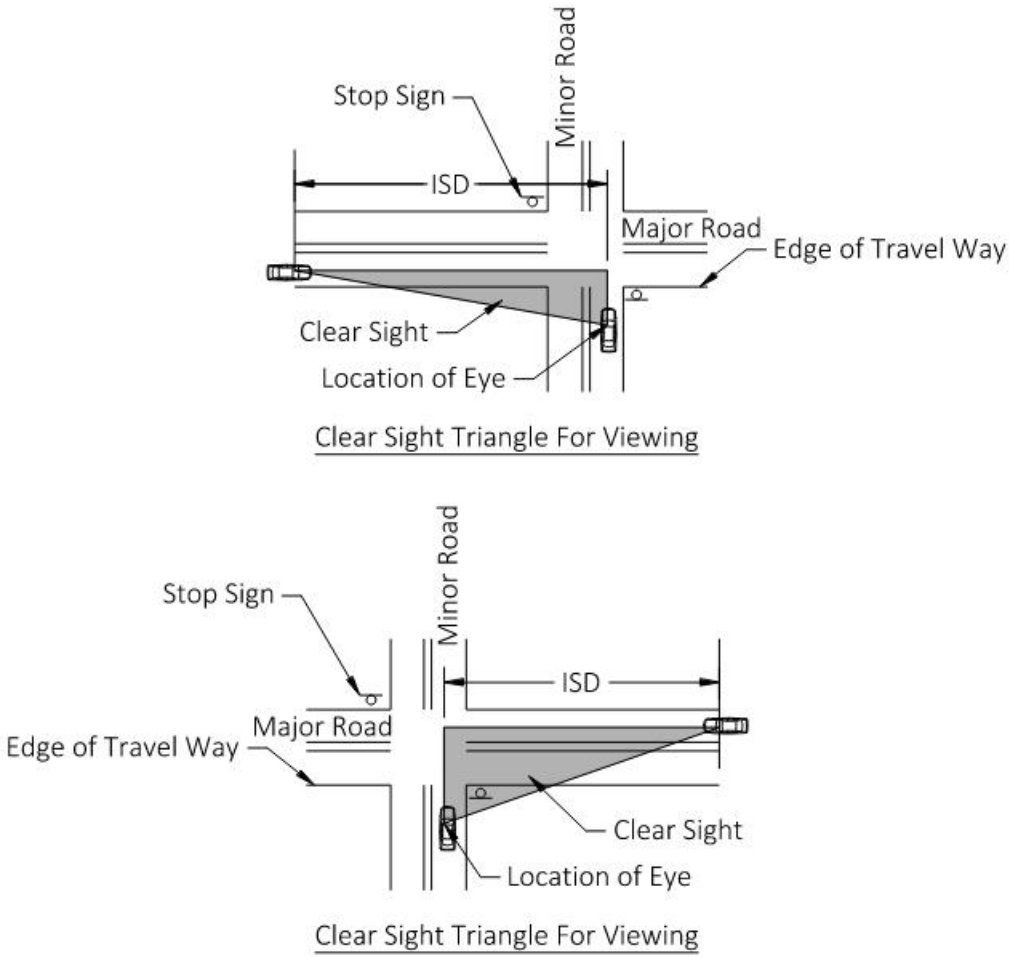
D. ISD is measured from a point on the centerline of the minor road/driveway 14.5 feet from the edge of traveled way of the major road. It is measured from a height of 3.75 feet on the minor road to an object height of 4.5 feet on the major road.

E. The required ISD is based on the posted speed limit of the major road (shown in Table 3-7 and Figure 3-4).

Table 3-7: Intersection Sight Distance

Intersection Sight Distance	
Posted Speed Limit (mph)	Required Sight Distance (ft)
25	250’
30	300’
35	350’
40	400’
45	450’

Figure 3-4: Intersection Sight Triangles



3.5.2 Stopping Sight Distance

Stopping sight distance (SSD) must be evaluated at horizontal and vertical curves, intersections, crosswalks, and any other scenario where a driver's view of the roadway ahead may be skewed. Sight line easements must meet SSD requirements. SSD must be evaluated per the most current AASHTO *Green Book*.

3.6 ROADSIDE CLEARANCE

A roadside clearance shall be provided on all street improvement projects according to guidance for urban areas in the most recent AASHTO *Roadside Design Guide.* The designer should follow the AASHTO *Roadside Design Guide* and key topics below.

A. No fixed object (e.g., new light pole, utility pole, street furniture, trash can, or artwork) can be closer than 2 feet to face of curb.

B. At street corners, no fixed object should be taller than 3 feet to maintain vision sight triangles.

C. Sign placement should follow City Standard Drawings, with a 6-inch clearance between the face of curb and the edge of the sign.

D. Mailboxes within the clear sight area must be constructed according to Std. Dwg. OC519.

3.7 TRAFFIC CALMING

The ODOT *Blueprint for Urban Design,* Section 3.2.4, explains how to achieve target speeds on highways within urban areas. Several traffic calming design treatments may be appropriate based on the context of the road. The City Engineer must approve all treatments. Coordination with emergency providers, transit agencies, Oregon City School District, and the Clackamas Fire District #1 needs to occur before traffic calming treatments are installed to confirm potential impacts to emergency and transit routes.

Traffic calming refers to street design techniques that recreate safe, slow, residential, and mixed-use streets without significantly changing vehicle capacity. The goal is to mitigate the impacts of traffic on neighborhoods and business districts that need greater balance between safety and mobility. Traffic calming seeks to influence driver behavior through physical and psychological means, resulting in lower vehicle speeds or through traffic volumes. Physical traffic calming techniques outlined in the Oregon City TSP include but are not limited to:

A. Narrowing the street by providing curb extensions/bulb-outs or midblock pedestrian refuge islands.

B. Deflecting the vehicle path vertically by installing speed humps, speed tables, or raised intersections (refer to Std. Dwg. OC528).

C. Deflecting the vehicle path horizontally with chicanes or roundabouts.

D. Narrowing travel lanes and providing visual cues (e.g., buildings, street trees, on-street parking, or landscaping) next to the street to create a sense of enclosure that prompts drivers to intuitively reduce vehicle speeds.

The Oregon City Neighborhood Traffic Fact Sheet outlines additional traffic calming techniques and weighs the benefits and drawbacks of each.

3.8 CUL-DE-SACS, EYEBROWS, AND OTHER DEAD-END ROAD TREATMENTS

As outlined in OCMC 16.12.025, the City discourages the use of cul-de-sacs, eyebrows, hammerheads, and permanent dead-end streets. These treatments should only be considered if construction of a through street is found to be impracticable due to topography or some significant physical constraints, such as geologic hazards; wetland, natural, or historic resource areas; pre-existing dedicated open space; pre-existing development patterns; or arterial access restrictions. If one of these treatment options is deemed necessary based on discussions with the City, general requirements include:

A. At dead ends, a cul-de-sac must be constructed per Std. Dwg. OC503. Cul-de-sacs must have a turnaround radius of 48 feet. If a constrained section has been approved, a 41-foot turnaround may also be approved. Refer to OCMC 16.12.025 for additional details and requirements.

B. Temporary dead ends on roads with planned future extensions must have an end-of-roadway marker per Std. Dwg. OC525. The City Engineer can approve street barricades (per Std. Dwg. OC512) in place of an end-of-roadway marker on local streets.

C. Eyebrow corners may be constructed on new local streets per Std. Dwg. OC518. Stopping sight distance must be evaluated at all new eyebrow corners, and sight-line easements may be required.

D. Hammerheads are only allowed on Private Streets.

If these requirements cannot be obtained due to constraints, then approval from the City Engineer is required through the design modification process. Section 3.11 provides additional requirements for street design features based on required access for fire apparatuses.

3.9 DRIVEWAYS

Driveways must meet the requirements in OCMC 16.12.035 and be constructed per Std. Dwg. OC504-OC506. This section provides a starting point for designers considering driveways and is not exhaustive of all information. Minimum driveway spacing is determined by the functional classification of the road (shown Table 3-8). Minimum and maximum driveway widths are determined by the property zoning (shown in Table 3-9). All new and replaced driveways must meet ADA and PROWAG requirements for accessibility. As more types of housing and styles of development change over time, OCMC 16.12.035 shall take precedence if any conflict exists. These charts are provided only as reference guides which mirror City Code at the time of adoption.

Table 3-8: Driveway Spacing Standards

Street Functional Classification	Minimum Driveway Spacing Standards	Distance (ft)
Major Arterial	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	175’
Minor Arterial	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	175’
Collector	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	100’
Local	Minimum distance from a street corner to a driveway and between driveways for all uses other than detached single- and two-family dwellings.	25’

Table 3-9: Driveway Approach Widths

Property Use	Minimum Driveway Approach Width (ft)	Maximum Driveway Approach Width (ft)
Single family	10’	24’
Duplex	10~~2~~’	24’
3- or 4-plex	10~~2~~’	36’
Multifamily	18’	30’
Commercial, industrial, office, institutional, mixed-use, and/or nonresidential	One-way: 12’ Two-way: 20’	40’

3.10 ALLEYS

Alleys are only allowed if required by an Oregon City Concept Plan. Alleys must be private.

3.11 PRIVATE STREETS

In certain circumstances, creating a private roadway may be permitted if it is the only reasonable way to provide access that minimizes impact to the proposed lots or parcels. Requirements for private streets include:

A. Design and construction of a private roadway widths, cross section, and design speed must be consistent with the design standards for public roads classified as local streets, except as noted in these *Standards* (Section 3.0).

B. All private streets must meet ADA accessibility standards; sidewalks and sidewalk ramps on private streets must be designed accordingly.

C. The City will not be responsible for maintaining private roads. Formal maintenance agreements or equivalents should be established to ensure private responsibility for future maintenance.

D. Private streets and their respective easements must be distinguished from public roadways. Any reservations, restrictions, and maintenance agreements related to the created private roadways must be described in the land division plat or deed records.

E. The Engineer of Record and/or City Project Manager must consider utilities and roadway drainage.

F. Private streets must also comply with Fire Code for load and fire apparatus access requirements if they are designated fire apparatus access roads. See Section 3.11 for additional information on fire standards.

G. Documents defining ownership, use rights, and allocation for liability for maintenance of private streets must be submitted to the City before or in conjunction with final public facility permit approval.

H. A blue street name sign must be posted at each private street entrance from a public street per OC521-522.

3.12 FIRE STANDARDS

City streets shall be designed and constructed based on the information presented in the 2022 Oregon Fire Code (OFC), which is based on the 2021 International Fire Code, or most recent code if a newer one exists. City amendments to the Oregon Fire Code are outlined in OCMC 15.40.030. Oregon City is located within Clackamas Fire District #1. Additional resources for the design of access roads, fire flow requirements, and hydrant placement include:

A. The *Fire Code Applications Guide*

B. Appendix D of the Oregon Fire Code

C. Clackamasfire.com

If the guidance in this section cannot be achieved, then a design modification is required for approval by City Engineer.

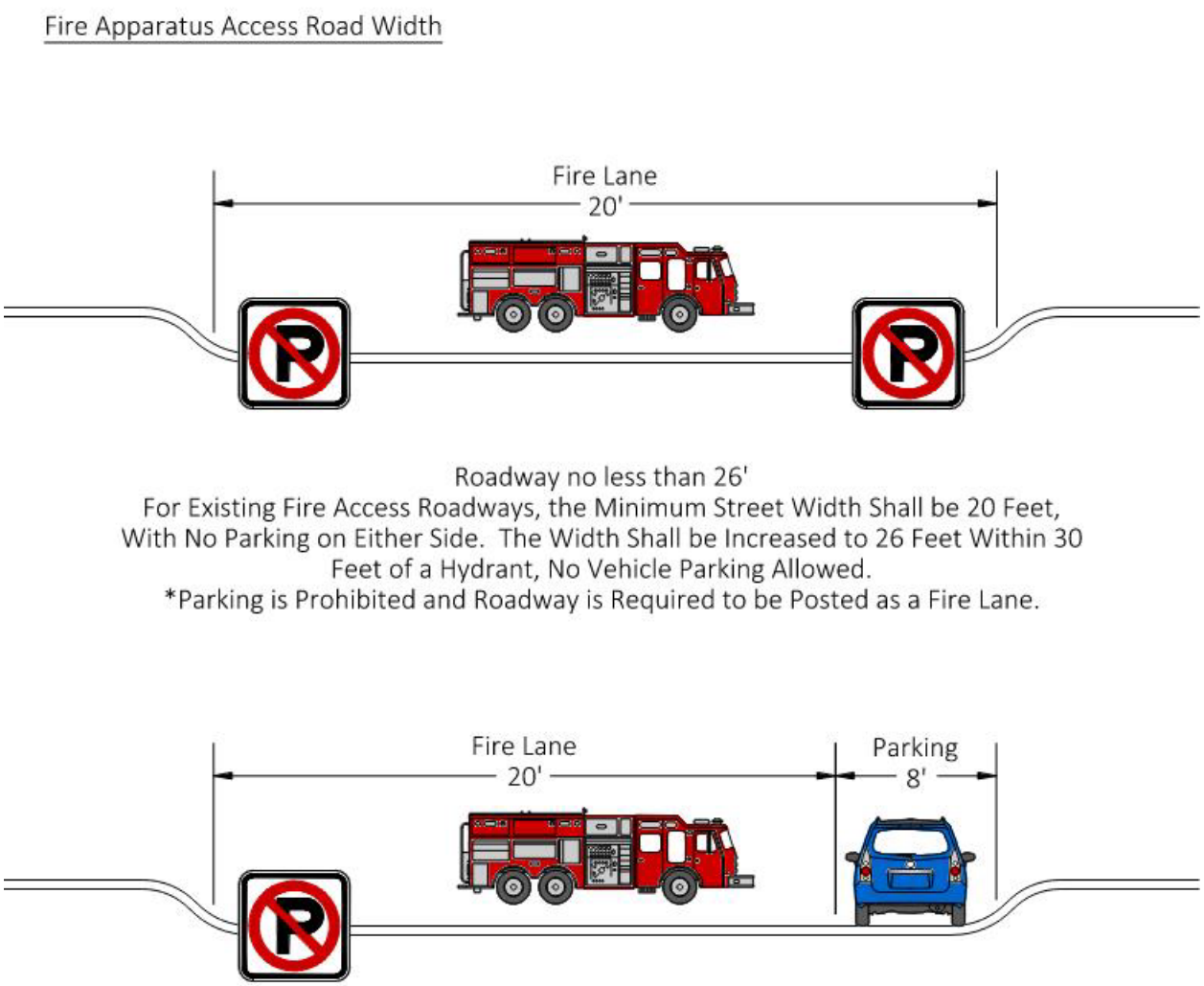
3.12.1 Roadway Cross Section for Fire Apparatus

Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles, “No Parking” signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Table 3-10 and Figure 3-5 provide the appropriate guidance.

Table 3-10: Roadway Cross Section for Fire Apparatus

Roadway Paved Width	On-Street Parking
26 ft or less	None
26–32 ft	One side
32 ft or more	Both sides

Figure 3-5: Guidance for Fire Apparatus



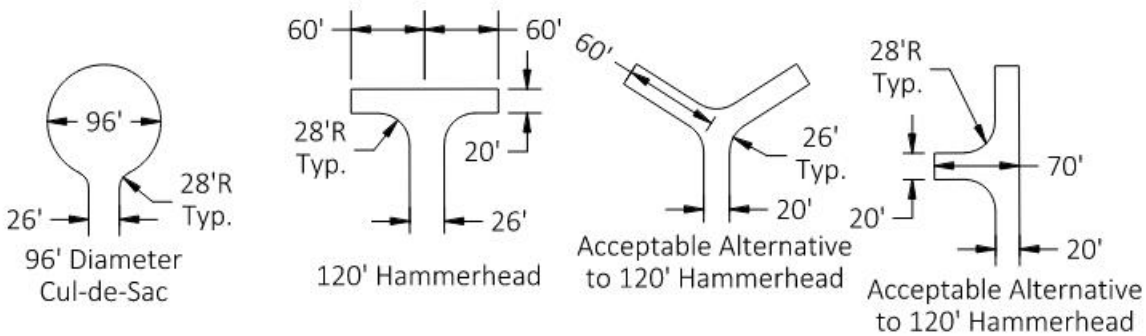
3.12.2 Fire Access Slope

Based on the Oregon Fire Code, Appendix D, D103.2 Grade, fire apparatus access roads shall not exceed 12% in grade, with up to 15% allowed if sprinklers are installed, unless it is approved by the Clackamas Fire District #1 Fire Chief. Intersections and turnarounds have a maximum grade of 5%. OCMC 16.12 provides additional information.

3.12.3 Dead-End Roads and Turnouts

Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround. Dead-end fire apparatus access roads in excess of 500 feet in length shall have a driving surface width of no less than 26 feet. Diagrams of approved turnarounds are shown in Figure 3-6 and OFC 503.2.5.

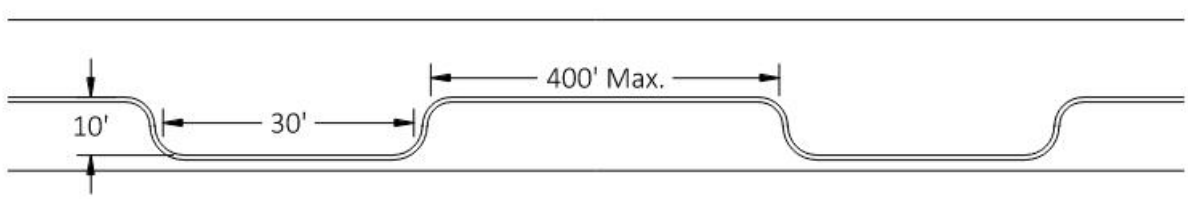
Figure 3-6: Dead End Roads



Source: *Fire Code Applications Guide*

When any fire apparatus access road exceeds 400 feet in length, turnouts 10 feet wide and 30 feet long shall be provided in addition to the required road width and shall be placed no more than 400 feet apart, unless otherwise approved by the City. These distances may be adjusted based on visibility and sight distances. Figure 3-7 provides a diagram of a turnout.

Figure 3-7: Turnouts



Source: *Fire Code Applications Guide*

4.0 MULTIMODAL DESIGN

All streets within the City should be multimodal to serve a range of needs for all street users, including pedestrians, bicycles, motor vehicles, transit, and freight. The adjacent land use and context, functional classification, and street network connectivity can influence the street design and how the transportation system serves each user. To account for this, Oregon City classified the street system into a hierarchy organized by function and street type. These classifications ensure that streets reflect the neighborhoods through which they pass and that they consist of a scale and design appropriate to the character of the abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes, including people walking, biking, using transit, driving, and moving goods. Within these street classifications, context-sensitive design may result in alternative cross sections. The Oregon City multimodal street system is further described in the Oregon City TSP.

Chapter 4 outlines the standards for multimodal design, and the following sections discuss design guidance and standards for each travel mode.

4.1 PEDESTRIAN DESIGN

All pedestrian improvements shall comply with the PROWAG standards for a pedestrian access route. The specific provisions of the PROWAG standards for pedestrian access routes can be found in the Clackamas County ADA Design Review Checklist—Sidewalk/Multiuse Path (see Appendix C). The Oregon City TSP provides a map for future pedestrian connectivity planned throughout the City. Additional requirements for pedestrian design in the public right-of-way are described below.

A. Pedestrian facilities are required on both sides of all City streets per City Code and policies. Pedestrian facilities may include sidewalks and/or a shared-use path.

B. If right-of-way or public easement is adequate, the development is required to connect new pedestrian facilities to existing facilities that are terminated midblock and are within 15 feet of the proposed pedestrian facility. This includes associated improvements, such as curb, drainage, and landscaping.

C. Minimum widths for sidewalks shall be per OCMC 16.12.016, Oregon City Concept Plans, or other adopted plans.

D. Shared-use paths are allowed as an alternative or in addition to sidewalks (see Section 4.3).

E. All pedestrian facilities should be located adjacent to a landscape strip or other physical buffer from vehicular traffic unless otherwise approved. See Chapter 10 for more information on landscape design.

F. All roadway improvements, including sidewalks and shared-use paths, should be constructed within the public right-of-way. Sidewalks and shared-use paths may be located within a public easement if approved.

G. Refer to Chapter 3: Geometric Design for additional details regarding horizontal and vertical clearance and curb ramps.

4.1.1 Pedestrian Crossings

The ODOT *Blueprint for Urban Design* (Chapter 3, Table 3-9) provides target pedestrian crossing spacing that depends on the context classification identified for ODOT urban roadways. A range, rather than a single target, offers flexibility for practitioners to make decisions based on roadway network characteristics (e.g., frequency and spacing of intersections), pedestrian destinations (e.g., transit stops), and a cluster of land uses.

4.1.1.1 Mid-Block Crossings

Marked midblock crosswalks may be considered in the following cases and may be provided if justified per the MUTCD:

A. On arterial or collector roadways with a posted speed of 35 mph or less where existing intersections, proposed intersections, or existing crossing opportunities are more than 330 feet apart.

B. In locations with existing or anticipated moderate-to-high pedestrian volumes.

Midblock crosswalks should be generally pursuant to the recommendations of Institute of Transportation Engineers (ITE) *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities: An ITE Proposed Recommended Practice*. They should be designed and constructed with the following features:

A. A raised concrete median when crossing three or more lanes of traffic.

B. Curb ramps meeting ADA requirements—curb ramps on both sides of the street per these *Standards* (see Appendix C).

C. Curb extensions in areas where on-street parking lanes are present to enhance pedestrian visibility.

The ODOT *Traffic Manual* provides guidance and criteria to determine the appropriate treatment at crosswalk locations based on the number of lanes, refuge island, average annual daily traffic (AADT), and posted speed.

An engineering study documenting the need, location, and proposed treatment for the crossing should be prepared for approval by the City Engineer.

4.2 BICYCLE DESIGN

Encouraging and accommodating bicycles as a transportation mode is a priority for the City. Appropriate bicycle facilities need to be evaluated and included early in project planning and development. The ODOT *Blueprint for Urban Design* (Chapter 3) provides additional information on bicycle facility selection, and the approach is based on FHWA's *Bikeway Selection Guide.*

The ODOT *Blueprint for Urban Design* provides guidance on bicycle facility selection and how it relates to the context classification identified for ODOT urban roadways. It outlines a selection process, provides a tier identification matrix based on volume and speed, and recommends preferred bicycle facility design for the respective context classifications.

Bicycle facilities are required on all City streets classified as ~~a~~ collector streets or higher. The standard bicycle lane width is 6 feet based on the City Code. However, when possible, it is desirable on collectors and arterials to have ~~8-foot,~~ on-street buffered bicycle lanes (6-foot bicycle lane with a 2-foot buffer). Separated bicycle facilities may be necessary in higher-speed environments to improve bicyclists' safety and comfort. The minimum bicycle

facility requirement is on-street buffered bicycle lanes, but the preferred solution is to provide separated bicycle facilities. Alternative applications may include raised bicycle facilities or shared-use paths. Refer to Oregon City area-specific planning documents for guidance. For alternative bicycle facility design, refer to FHWA's *Separated Bike Lane Planning and Design Guide*. See Table 3-1 for additional information.

Refer to Std. Dwg. OC529 and OC529A for additional design details.

The Oregon City TSP provides a map for bicycle routes and connectivity planned throughout the City.

4.3 SHARED-USE PATHS

Shared-use paths may be allowed as an alternative or in addition to sidewalk and separated bicycle facilities in constrained environments that require City Engineer approval. The Oregon City Trails Master Plan outlines design guidance for regional community and local trails, including information about shared-use paths for each type of trail. The location of various trails is provided in the Trails Master Plan Map. Integrating shared-use paths can affect the overall street cross section. The Trails Master Plan identifies the path widths depending on the type of trail. The required shared-use path width varies depending on the facility's anticipated use and topography, preservation of significant trees, safety, and right-of-way. Deviation from the cross section identified in the Trails Master Plan must be processed through the modification process. Deviation from the routes identified in the Trails Master Plan must also be processed through the modification process, and the modification request shall include a shadow plat demonstrating how the path will extend through adjacent properties.

The Oregon City TSP provides a map of shared-use paths for existing and future connectivity throughout the City.

Shared-use paths are also identified as "public off-street pedestrian and bicycle accessways" in the OCMC. Pedestrian and bicycle accessways are required through private property or as right-of-way connecting development to the right-of-way at intervals not exceeding 330 feet of frontage, or where the lack of street continuity creates inconvenient or out-of-direction travel patterns for local pedestrian or bicycle trips. Such paths must meet OCMC 16.12.032 requirements.

In some cases, a single path can be implemented to meet the intents and/or requirements of The Trails Master Plan, Oregon City TSP, and OCMC 16.12.032.

4.4 ALTERNATIVE TRANSPORTATION MODES

Alternative transportation modes include micromobility technology, such as e-bicycles, e-scooters, and other modes beyond driving motor vehicles and freight, riding transit, walking, and bicycling. Alternative transportation modes should be considered when planning and designing roadways as emerging technology and new modes become more widely used on the transportation system. Project teams should collaborate and obtain approval from the City Engineer to determine the appropriate place for each user. For example, micromobility technologies, such as e-bicycles and e-scooters, should be planned and designed in coordination with current bicycle facilities.

4.5 TRANSIT

Oregon City is served by TriMet, ClackCo Connector Shuttle, Canby Area Transit (CAT), and South Clackamas Transportation District (SCTD). This section describes information on their specific routes and connections. The TriMet *Bus Stops Guidelines* provides guidance and criteria to plan and design bus stops that are easily

identifiable, safe, accessible, and comfortable to wait for and access a bus. The Metro *Designing Livable Streets and Trails Guide* provides guidance for transit stop placement, transit stop and bikeway design configurations, and transit priority treatments.

Transit streets are defined in the OCMC 17.04.1310. Pedestrian/bicycle accessways must minimize the travel distance to transit streets and stops as well as neighborhood activity centers (Refer to Sections 4.1 and 4.2 for design related information for pedestrians and bicycles, respectively.) The City Engineer may require provisions, including easements, for transit facilities along transit streets where a need for bus stops, bus pullouts, or other transit facilities within or adjacent to the development have been identified. The Oregon City TSP outlines lane widths for streets on transit routes based on the optimum street design information.

4.5.1 General Requirements

A. All transit stops, shelters, and associated appurtenances must be designed and constructed per the PROWAG.

B. Placement of waste receptacles, signs, seating, or any other appurtenance must not infringe on an ADA area or the pedestrian access route, as defined by R302 of PROWAG. Placement also must not compromise direct access between the ADA waiting area and the ADA landing area or access between either ADA area and the sidewalk.

C. Any installation of transit stops, shelters, or associated appurtenances requires approval from the transit agencies prior to obtaining approval from the City Engineer. TriMet should be contacted (Development_Review@trimet.org) to confirm improvements to transit stops and shelters. The design and bus zone needs are customized at each location depending upon service levels, amenities, number of routes, ridership, and turning movements.

D. Before installation, the project must evaluate transit stops, shelters, and associated appurtenances for adequate sight distance.

4.5.2 ADA Landing Area Requirements

A. ADA landing areas shall provide a minimum clear length of 8 feet (measured perpendicular to the curb) and a minimum clear width of 5 feet (measured parallel to the roadway).

B. Where rear-door ADA landing areas are provided, they shall comply with this section.

C. Parallel to the roadway, the grade of ADA landing areas shall be the same as the roadway. Perpendicular to the roadway, the designed grade of ADA landing areas shall be 1.5% or less.

D. ADA landing areas shall connect to streets, sidewalks, or pedestrian circulation paths by ADA-accessible pedestrian access routes.

4.5.3 Transit Stop Clearances

All transit stops must meet the standard clearance requirements shown in Table 4-1.

Table 4-1: Transit Stop Clearance Requirements

Description	Requirement
Sidewalk clearance	Minimum of 5.0 ft of sidewalk clearance.
Accessible pathway	Minimum of 5.0 ft wide paths between shelter and any utility object.
Road clearance	2.5 ft minimum clearance between shelter and edge of curb, assuming pedestrian walking path is behind the shelter.
ADA landing area	See Subsection 4.5.2.

4.5.4 Transit Shelters

Transit shelter placement and orientation must provide the following:

A. 5 feet of pedestrian pass-by, including clearance between poles, hydrants, and other obstacles.

B. An ADA landing area adjacent to the bus stop sign and outside of the shelter.

C. A clear pathway from the ADA waiting area inside the shelter to the ADA landing area.

D. A clear pathway from the rear door landing area to the pedestrian access route.

E. Interior lighting at the shelter for passenger visibility and security.

Transit shelters must meet the clearance requirements shown in Table 4-2.

Table 4-2: Transit Shelter Clearance Requirements

Description	Requirement
ADA waiting areas in shelters	A minimum of 2.5 ft × 4.0 ft space must be kept clear for a mandatory waiting area to accommodate mobility devices.
Visibility	Shelter must not block motorists' or pedestrians' lines of sight.
Building clearance	Minimum 12 inches from buildings, fences, and other structures to the bus shelter in order to allow room for maintenance.
Relation to bus stop	Shelter shall be within 25 ft of the ADA landing Area.
Sight distance	The shelter shall be placed so that the passengers waiting in the shelter can see approaching vehicles.

4.5.5 Transit Stop Seating

A. Benches or seats must not be placed closer than 3.5 feet from the curb or 6 feet from the curb when a travel lane exists immediately adjacent to the curb.

B. Clearance requirements for shelters apply to seating.

C. Seating must be oriented toward the roadway or in the direction of approaching traffic.

D. Furniture must be bolted to the sidewalk using stainless steel drop-in anchors sized according to the furniture manufacturer's recommendations.

4.5.6 Pavement Requirements

A. Any damage to the sidewalk surface resulting from transit stop-related furniture is the transit authority's responsibility to repair (even in the event of an automobile crash).

B. Sidewalk repairs must be completed according to Std. Dwg. OC508.

C. In roadway areas where buses start, stop, or turn—or along roadways with high bus volumes—the following requirements must be met (refer to Chapter 6 for more details about pavement design):

   1. Concrete pavement must be used on roads carrying more than 150 buses per day.

   2. A reinforced concrete pad must be provided at high-volume bus stops and bus pullouts.

4.5.7 Standard Transit Stop Configurations

Standard transit stop configurations are shown in Figure 4-1 through Figure 4-3.

Figure 4-1: Curb-Tight Sidewalk with Bus Shelter

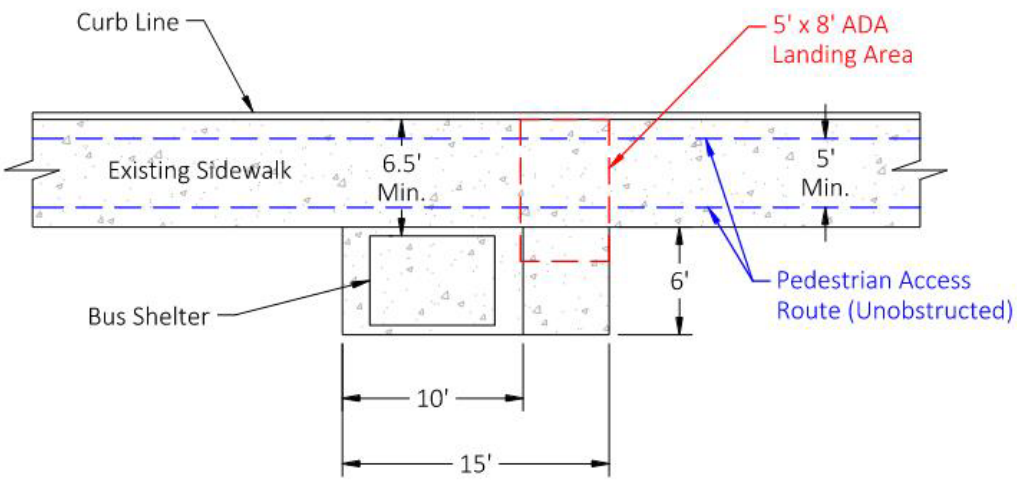


Figure 4-2: Separated Sidewalk with Rear Door Landing Area

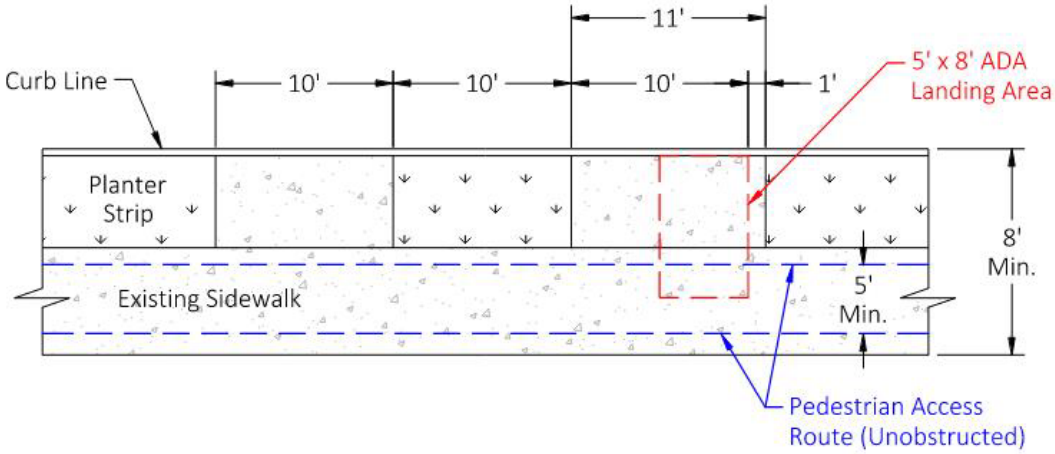
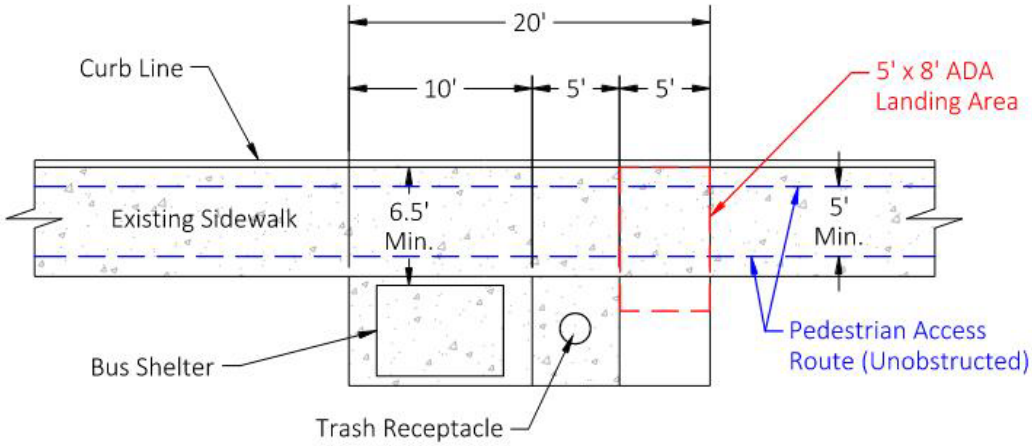


Figure 4-3: Curb-Tight Sidewalk with Shelter and Waste Receptacle



4.6 FREIGHT

Freight routes were designated in the Oregon City TSP to ensure freight trucks can efficiently travel through and access major destinations. The designation of through freight routes provides efficient movement while maintaining neighborhood livability, maintaining public safety, and minimizing roadway system maintenance costs.

The Oregon Highway Plan identifies Interstate 205 (I-205) as a freight route through Oregon City. While ODOT does not classify McLoughlin Boulevard (OR 99E) as a freight route, FHWA does designate it as a truck route.

Much of the freight activity in Oregon City is related to the employment areas located near the southeast corner of the City along Trails End Highway (OR 213), Beavercreek Road, and Molalla Avenue as well as within the Oregon City Regional Center. To allow for efficient movement between these designated areas and regional freight routes, Metro has classified several roadways in the City as freight connectors. The connector roadways link I-205 with the employment areas and include OR 213, Beavercreek Road, and OR 99E. Oregon City has designated these streets as local truck routes to ensure freight is adequately accommodated in the city.

5.0 TRAFFIC ENGINEERING

Chapter 5 provides general traffic engineering requirements and refers to other resources for the following topics:

A. Design speed

B. Operational standards

C. Traffic control

D. Stop control

E. Traffic beacons and signals

F. Signing

G. Pavement markings

H. Special street standards

I. Transportation demand management

J. Construction traffic control

5.1 DESIGN SPEED

The design speed establishes the geometric and roadside design of a road's physical features. Projects should consider street types (commercial, industrial, residential, or mixed-use) when identifying the design speed. The Engineer of Record and/or City Project Manager should coordinate with the City Engineer to confirm the selected design speed. The intent is for the posted speed to be consistent with the design speed.

Design speed is based on Oregon Revised Statutes (ORS) statutory speeds under ORS 801.100 (Definitions) and the criteria as described under ORS 811.105, ORS 811.111, and ORS 810.200. Refer to the ODOT *Speed Zone Manual* for additional information on design speeds for projects.

ORS 810.180 regulates the designation of maximum speeds when they are different from the statutory maximum speed limit of roadways.

Under subsection ORS 810.180 (5)(f), ODOT can delegate authority on low volume roadways to any city or county upon their request. This request can be made for specific roadways or for all low volume roads under the jurisdiction of the requesting agency.

Under subsection ORS 810.180 (5)(g) ODOT can delegate its authority of speed limit setting to any incorporated city.

5.1.1 Changing Speeds

In Oregon, ODOT sets speed limits on all roadways by issuing Speed Zone Orders. The ODOT Speed Zone Manual provides guidance for setting and changing a speed zone. As of January 2023, a state law went into effect that allows cities to set and change speed limits.

At the time of this writing, the City of Oregon City has not determined if it will continue to request ODOT to provide this service or if the City will be taking this service over. Either way, ORS 801.100, 811.105, and 811.111 will remain in effect.

Requests from private citizens are directed to the City Engineer, who will review and assess an applicable approach.

The City can request a speed zone review from ODOT by submitting a request to ODOT. ODOT's Traffic Engineering staff will then use nationally-accepted traffic engineering standards and procedures to review and investigate. Statutes require establishing speed zones on the basis of an engineering study. The engineering study should consider factors such as:

A. Context and functional classifications

B. Speed characteristics

C. Crash history

D. Roadside culture, including pedestrians and cyclists

E. Traffic volumes

F. Roadway alignment, width, and surface

5.2 OPERATIONAL STANDARDS

OCMC 16.12.033 provides mobility standards for City intersections on local roadways and State-owned intersections.

State-owned streets should comply with the mobility targets included in the Oregon Highway Plan. However, some roadways and intersections may be exempt from meeting the State mobility targets for proposed development that is permitted, either conditionally, outright, or through detailed development master plan approval. The Engineer of Record and/or the City Project Manager should review the 2018 Highway 213 Corridor Alternative Mobility Targets for City streets within this corridor area and verify exemptions with the City Engineer.

5.2.1 Traffic Impact Analysis Guidelines

The Oregon City *Guidelines for Traffic Impact Analyses* detail information about the City's required content for a Transportation Analysis Letter (TAL) and a Transportation Impact Study (TIS). In general, the TAL applies to smaller developments that are presumed to have a lesser transportation impact. The TIS applies to larger developments that are presumed to have a greater transportation impact.

5.3 IDENTIFYING TRAFFIC CONTROL

Traffic control at an intersection may include a yield, stop, signal, or roundabout. Section 3.4 provides geometric design guidance for the various types of intersections. Roundabouts should be considered in conjunction with the traffic operational analysis conducted for other traffic control types.

Identifying the appropriate type of traffic control at an intersection can be accomplished through an intersection control evaluation (ICE). ICE is a data-driven, performance-based framework to screen intersection alternatives and identify an optimal solution. The City does not have a specific ICE policy or associated guidance.

However, understanding the fundamental objectives and principles of conducting ICE can guide the decision-making process.

Key objectives when selecting the optimal or preferred intersection control alternative for a given project context include:

A. Understanding the intended context and how operations, safety, and geometry fit that context for each intersection or corridor, including intended users (e.g., pedestrians, bicyclists, passenger cars, transit vehicles, freight, emergency responders, oversize/overweight vehicles).

B. Identifying and documenting the overall corridor or intersection context, including the built, natural, and community environments and the intended performance outcomes of the intersection form.

C. Considering and assessing a wide range of traffic control strategies and other practical improvement concepts to identify a worthy project-level technical evaluation.

D. Comparing engineering and economic analysis results of practical alternatives that consider implementation costs, performance benefits and impacts (e.g., safety, multimodal, operations, environment), and the estimated service life of alternatives.

FHWA's *Intersection Control Evaluations* provides additional guidance to support intersection traffic control decision-making.

5.4 STOP CONTROL

Stop signs are installed where it may be unclear as to who has the right-of-way. Unnecessary stop signs can lead to drivers disobeying signs or creating cut-throughs in neighborhood streets. Before installing stop signs on City streets, the City Project Manager should consult the warrants described in the MUTCD (Section 2B.06 and 2B.07). As outlined in the MUTCD, considerations for stop sign installations include:

A. Traffic volumes

B. Sight distance

C. Crash history

5.4.1 Stop Signs by Facility Type

Requirements for stop signs by facility type include.

A. **Local to Local:** Do not place stop signs at intersections between two local streets unless engineering judgment deems it necessary for safety.

B. **Collector to Local:** Place stop signs on the local street only.

C. **Collector to Collector:** Place four-way stop signs on all approaches.

D. **Collector to Arterial:** Place stop signs on the collector street only.

E. **Arterial to Arterial:** Place four-way stop signs on all approaches, depending on the average daily traffic (ADT).

F. No "except right turn" signs are permitted within the City unless approved by the City Engineer.

G. Stop bars are only painted on collector or arterial streets.

The City Stop Sign Brochure provides general information about stop signs and criteria for two-way and all-way stop control. Criteria for two-way stop signs and four-way or all-way stop signs are provided below. Intersection sight distance requirements and additional information are provided in Section 3.5.

5.4.2 Two-Way Stop Signs

Two-way stop signs are installed at intersections where drivers cannot safely apply the right-of-way rule.

Two-way stop signs are used in the following locations:

A. Where a street enters a through street.

B. Where a safe approach speed is less than 10 mph due to permanent visibility obstructions, such as buildings, trees, or shrubs.

C. Where crash history indicates three or more reported crashes over the past three years that could have been avoided with a stop sign.

D. Where circumstances and crash history indicate that observing the right-of-way rule could still be hazardous and result in safety concerns.

E. Where a local street intersects with a collector or arterial street.

5.4.3 Four-Way or All-Way Stop Signs

A four-way or all-way stop is considered only when an intersection with a two-way stop has a history of crashes and traffic congestion problems.

Four-way stop signs are used in the following locations:

A. Where traffic signals are needed (four-way or all-way stop signs may be used as an interim measure).

B. On local streets where there have been five or more reported crashes in a two-year period that would likely have been prevented by an all-way stop.

C. On through streets where, within a two-year period, the intersection had at least 1.5 crashes per million vehicles entering the intersection that would likely have been prevented by all-way stop signs.

D. Where the number of vehicles entering an intersection averages at least 500 vehicles per hour for any 8 hours of a typical day and the combined vehicular and pedestrian volumes from the minor street average at least 200 per hour for the same 8 hours.

5.5 TRAFFIC BEACONS AND SIGNALS

Traffic beacons and signals may include the following:

A. Traffic signals

B. Pedestrian and bicycle crossing traffic control devices

   1. Midblock pedestrian signals
   2. Pedestrian hybrid beacons (PHBs)
   3. Rectangular rapid-flashing beacons (RRFBs)

5.5.1 General Requirements

Before a traffic signal can be approved, a traffic analysis must take place. Installation and justification of a traffic signal or beacon should be based on operational analysis and warrant analysis outlined in the ODOT *Traffic Signal Guidelines* and the MUTCD. *Clackamas County Roadway Standards* provide additional information on traffic signal analysis in Section 260. FHWA's Safe Transportation for Every Pedestrian (STEP) initiative also provides additional countermeasures to improve pedestrian crossing locations. General requirements are described below.

A. New traffic signals on City roadways should meet at least one of the signal warrants in the MUTCD within 3 years after construction and shall be approved for installation by the City Engineer. Peak-hour volume warrants will only be approved if the intersection serves a special generator with unique peak traffic characteristics.

B. City Project Managers should base the signal cycle length and phasing for a new or modified traffic signal during different times of day on an approved signalized intersection operations analysis. Guidelines for selecting signal phasing are included in the ODOT *Traffic Signal Guidelines*. These guidelines also include warrants for left-turn protected, protected/permissive, and permissive/protected signal phasing as well as for protected right-turn signal phasing.

C. New traffic signals should be separated from existing or planned traffic signals by a minimum of ¼ mile unless evidence supports adequate long-term operations at a lesser spacing.

D. Mixing roundabouts and signals along a corridor requires additional evaluation of the unique intersection control to verify the design, safety performance, and traffic operations of the entire corridor. Evaluations may include addressing the presence of a single adjacent signal or a broader corridor with multiple signals that could affect the roundabout. *NCHRP Report 772: Evaluating the Performance of Corridors with Roundabouts* (NCHRP Report 772) researched corridors containing signals and roundabouts and noted the need to conduct corridor-specific evaluations to determine which form of intersection control is operationally preferred on a given corridor and to understand the effects of mixing various types of intersection control. Refer to NCHRP Report 772 for additional information on performance measurement tools and techniques to assist in the evaluation of a roundabout corridor.

E. All new or modified traffic signals require installation of pan/tilt/zoom (PTZ) cameras.

F. All new or modified traffic signals should include 2-inch conduit. If possible, fiber connections should also be included.

G. Plans must incorporate emergency vehicle signal preemption into the signal operation of all approaches to the intersection. Railroad signal preemption is required when tracks are 200 feet or less from a signalized intersection. A green track clearance by vehicles and pedestrians must be incorporated into the signal preemption design.

H. Separate bicycle detectors should be placed in all striped bicycle lanes and in streets with sharrows. All approaches of a signalized intersection must have pedestrian crossings unless traffic studies show that crosswalks should not be allowed. When pedestrian signal heads are not installed, the crosswalk must be closed by the City, with posted signs indicating that the crosswalk is closed. Sidewalk ramps or pedestrian landings are required for access to pedestrian signal push buttons.

I. Audible pedestrian signals (APS) should be used at all pedestrian crossings.

J. Signalized intersections with pedestrian access routes must comply with ADA requirements as described in the most recent version of ODOT's *Traffic Signal Policy and Guidelines*. This includes accessible pedestrian signals and push buttons that comply with the MUTCD and meet the provisions of PROWAG.

K. RRFBs should be used at midblock pedestrian and bicycle crossings with traffic volumes or crash history that justify this type of device.

L. New or existing schools with an expansion of 20% floor area or greater are required to install school zone flashers on roadways that are classified as arterial or collector roadways if the proposed or existing school speed zone signing supports a school speed 20 mph zone and the City supports a school speed zone installation. In addition to school zone flashers, radar speed signs may be required along arterial roadways. The Applicant is required to provide funds equal to 20 years of the maintenance and power of the school zone flasher and/or radar speed sign.

All traffic signal designs shall be reviewed by Clackamas County, who maintains all City traffic signals on behalf of the City. Clackamas County Standards take precedence for traffic signal design if any conflicts exist.

5.5.2 Design Standards

All new or modified traffic signal and beacon installations on City roadways must be designed based on the following resources and standards:

A. Clackamas Country Roadway Standards, Section 260

B. MUTCD

C. Oregon Supplement to the MUTCD

Specific signal design features to be included in a City signal design include:

A. Signal Poles/Heads

1. Use mast arm poles where possible.

2. Use louvered traffic signal backboards.

3. Use elevated plumbizers for signals on mast arms whenever possible.
4. Use decorative bases and powder coat all signal equipment (e.g., cabinets, poles, mast arms) black.
    a. No decorative bases are used on RRFBs and pedestrian pedestals.
5. Materials used in the construction of traffic signals shall be approved by the City Engineer and comply with the Oregon Standard Specifications for Construction and the *Clackamas County Roadway Standards*.

B. Detection

1. Use radar detection per current ODOT Standard Specifications for Construction and Standard Drawings and Oregon Traffic Signal Guidelines.

C. Wiring

1. Use Clackamas County color coding for signal wires.
2. Use International Municipal Signal Association (IMSA) cable in conduit, poles, and arms.
3. Use single conductors for power service and street lighting.
4. Install electrical meter bases without the meter for power service.

D. Power Source

1. Use electric power sources (coordination with PGE required). Solar options are not allowed.

E. Intelligent Transportation System (ITS)

1. Coordinate with the City Engineering Group regarding applicable ITS applications.
2. Refer to the Clackamas County ITS Action Plan.

F. Maintenance

1. Clackamas County maintains all beacons and traffic signals on City and County facilities. ODOT maintains all beacons and traffic signals on State facilities.

5.6 SIGNING

Signing materials and layout plans should be approved by the City Engineer before installation. City Project Managers must base signing design and construction on the following:

A. *Clackamas County Roadway Standards*, Section 270

B. MUTCD

C. Std. Dwgs. OC521, OC522, OC523, and OC524

5.7 PAVEMENT MARKINGS

The City Engineer must approve all striping materials and layout plans before installation. Striping design and construction must be based on the following:

A. ODOT Standard Drawings TM500 series

B. *Clackamas County Roadway Standards*, Section 280

C. MUTCD

D. Std. Dwg. OC529 and OC529A

City-specific pavement marking design standards that may differ from the ODOT and County standards include:

A. All pavement markings must be thermoplastic, and all longitudinal markings must be Method A extruded, surface, non-profiled, thermoplastic.

B. Green thermoplastic is allowed on arterial streets.

C. Elongated arrows are required.

D. Recessed pavement markers should be used.

E. All intersections that include stop signs shall include painted stop bars.

5.8 SPECIAL STREET STANDARDS

5.8.1 Stamped Sidewalk Street Names

For all projects, stamped street names are required on sidewalk corners at intersections in the following areas:

A. McLoughlin Conservation District

B. Willamette Falls Downtown District Zone

C. Canemah Historic District

D. Downtown Parking Overlay District

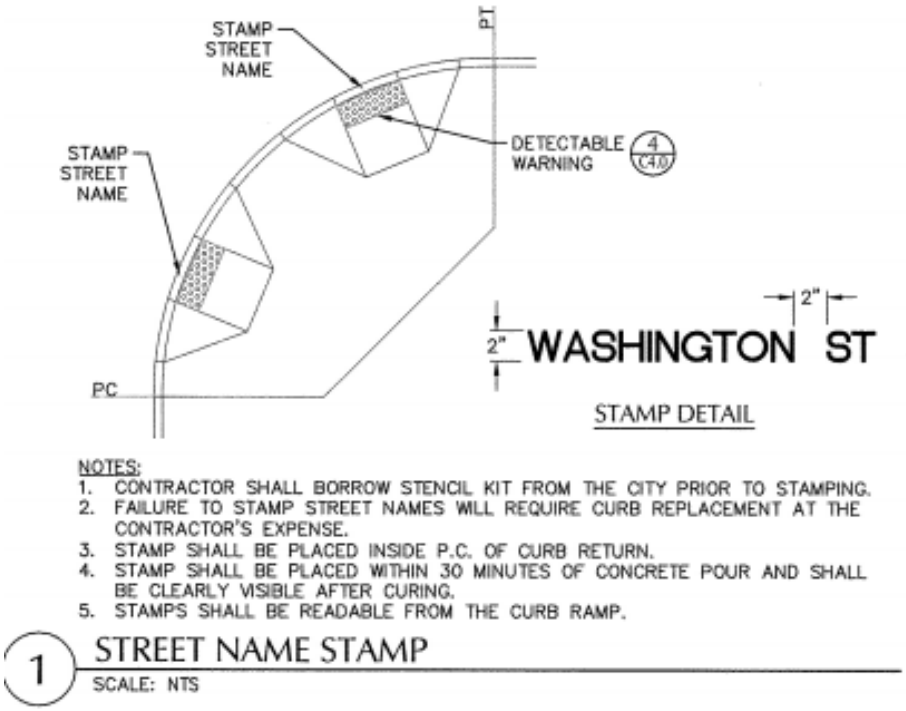
E. "Presidential" Streets not listed in other districts up to Division Street or 18th Street

For sidewalk repairs and/or reconstruction projects, street names in existing sidewalk corners must be preserved or re-stamped into the new concrete.

The Engineer of Record must coordinate with the City regarding borrowing the stencil kit from the City.

Figure 5-1 provides an example of a Street Name Stamp.

Figure 5-1: Street Name Stamp



5.8.2 Sidewalk Scoring

Requirements for sidewalk scoring include:

A. All sidewalk scoring shall follow OC508, except as noted.

B. Decorative sidewalk scoring shall occur in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

C. Decorative Sidewalk Scoring Detail applies to all locations, except the Washington Street corridor between Abernethy Road and 7th Street.

5.8.3 Tree Grates

Special tree grates shall be used in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

A. **Tree Grates:** Street trees shall have tree grates with frames and tree supporting systems. Tree grates and frames must meet the following requirements:

1. Two-piece cast iron grate with a natural finish with fitted frame manufactured by FairWeather SF or approved equal. Frame shall include rebar studs on three sides for sidewalk mounting, and one side shall include steel tabs to accept expansion bolts for curb mounting.

2. Where 10-foot sidewalks are being constructed, a tree grate with frame shall be the FairWeather SF CNK 4872, size 48” × 72” (overall dimensions 4 feet × 6 feet). Where 8-foot sidewalks are being constructed, a tree grate with frame shall be the FairWeather SF style IVY 3660, size 36” × 60” (overall dimension 3 feet × 5 feet).

3. Submit to the City for approval.

5.8.4 Benches

A. Benches shall be provided in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

B. The type of bench to be used is Model No. 2123-6 Restoration Seat, BLACK CASPAX-7 powder-coated cast iron frames, Alaska yellow cedar slats, surface mount, 6-foot length, manufactured by Outdoor Cathedral, LLC or an approved equal product.

5.8.5 Litter Receptacles

A. Litter receptacles shall be provided in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue.

B. The type of litter receptacle to be used, as of this writing, is Model No. 2816-DT-P, Renaissance litter container, side empty, with dome top, BLACK CASPAX-7 powder-coated steel finish, pedestal mount, manufactured by Outdoor Cathedral, LLC. Designers shall verify the current design to be used when needing to add these to their project.

5.8.6 Decorative Street lighting

Decorative street lights shall be provided in the Downtown District and along Washington Street, 7th Street, and Molalla Avenue according to Std. Dwg. OC536. Refer to Chapter 9 for additional street light details. While some decorative lighting exists in other neighborhoods, it is the intent of this code to limit decorative street lighting to the listed areas unless a land use decision or concept plan requires something different. In those cases, the design styles shall match those within Chapter 9 unless a specific new design is designated for a new neighborhood during the land use process.

5.9 TRANSPORTATION DEMAND MANAGEMENT

As noted in the *City Transportation Demand Management Plan 2017 Final Report*, transportation demand management (TDM) increases a transportation system’s efficiency by shifting trips from single-occupant vehicles (SOVs) to non-SOV modes or from peak to non-peak periods. TDM seeks to increase the universe of trips by expanding travel options, encouraging individuals to modify their travel behavior, and reducing the need for travel through efficient land uses. TDM programs often cost little but yield high impacts and are typically implemented by employers, public agencies, or public-private partnerships. The Oregon City TDM Plan provides a range of strategies to be implemented over time to improve the transportation system’s overall efficiency.

5.10 CONSTRUCTION TRAFFIC CONTROL

Traffic control in the public right-of-way is subject to a permit. Preparation of traffic control plans is based on project type, duration of work, and project characteristics and context. The Engineer of Record and/or City Project Manager must coordinate with the City Engineer to determine the need for traffic control plans.

The Engineer of Record and/or City Project Manager must submit a traffic control plan to be approved by the City Engineer before construction. *Clackamas County Roadway Standards*, Section 290, provides additional information on preparing traffic control plans.

Traffic control design in work zones must conform to the MUTCD and the ODOT Supplements to the MUTCD. Additional guidelines for preparing traffic control plans and identifying traffic control plan strategies are below:

A. ODOT *Sign Policy and Guidelines*

B. FHWA *Standard Highway Signs*

C. *Oregon Standard Specifications for Construction and Oregon Standard Drawings* TM800 series

D. *Oregon Temporary Traffic Control Handbook for Operations of Three Days or Less*

E. *Oregon Traffic Control Plans Design Manual*

5.10.1 Control of the Site

Requirements for control of the site include:

A. At no time shall flagging operations delay traffic for a period greater than 20 minutes.

B. Work and activity zones (construction, restoration, and erosion control) shall extend no more than 2,500 lineal feet at any one time unless otherwise approved.

C. Open trenches shall extend no more than 250 lineal feet at any one time unless otherwise approved.

D. No trenches are to be left unprotected between dusk and dawn.

E. Trenches shall conform to the technical requirements of Section 00405 of the Oregon Standard Specifications for Construction.

F. Trench plating shall be positively secured from movement and ramped with anti-skid coated plate ramps.

G. Roadway plates are only allowed on the road for a maximum of 7 days. Pavement patches must be completed in 7 days.

5.10.2 Temporary Pedestrian Accessible Route

If existing pedestrian access will be obstructed by construction, alteration, maintenance, or other temporary conditions, a continuous temporary pedestrian accessible route (TPAR) shall be provided consistent with the requirements of this section. TPARs shall conform to the requirements of Part 6 of the MUTCD and the most recent update of the Oregon Standard Specifications for Construction, Section 00220.02(b). The TPAR plan shall be included in the traffic control plans. The City Inspector will inspect the TPAR. If deficiencies are identified, the City Inspector will stop work until such deficiencies are corrected.

TPAR requirements include:

A. In work zones, do not block pedestrian access with vehicles or equipment parking, materials storage, or for any other reason except construction.

B. Keep the TPAR parallel to the disrupted pedestrian access route and be on the same side of the street where possible.

C. Do not route bicyclists into the TPAR. If it is necessary to divert bicyclists around the work, provision should be made for a separate bicyclist route.

D. If the work impacts the accessibility of pedestrian routes through or around the work zone, limit impacts to one corner of an intersection at a time.

E. Close sidewalks at a point where there is an alternate way to proceed. Provide signing and other traffic control devices directing pedestrians to an alternate pedestrian route.

F. The Applicant must inspect the on a regular basis to ensure it is safe and does not have gaps or surface displacements that create a hazard.

G. The TPAR shall meet the standards of a pedestrian access route as defined in PROWAG:

    1. Keep the minimum width to 48 inches. Provide a 60 x 60 inch passing space every 200 feet along the route.

    2. Keep the surface smooth and nonslip.

    3. Keep vertical clearance of at least 8 feet.

    4. Keep the cross slope at be no more than 2.0% perpendicular to the direction of pedestrian travel.

    5. Keep the grade less than or equal to the grade of the adjacent road.

    6. Provide a minimum turning space of 4 feet x 4 feet shall wherever it is necessary for pedestrians to turn.

    7. If it is necessary to cross a curb, the TPAR shall include a temporary ramp meeting standards for a curb ramp.

    8. If it is necessary for the TPAR to cross a driveway or construction access, provide truncated dome warning. If it is not possible to provide truncated dome warning, provide construction staff whenever construction vehicles are crossing the pedestrian access route.

    9. Provide nighttime lighting.

H. Provide and maintain pedestrian channelizing devices (PCD) through the period in which the permanent pedestrian access route is disrupted. Pedestrian channelizing devices intend to prevent people with disabilities from straying into the vehicular way or into an active construction area. Caution tape is not sufficient to guide people who are blind or have low vision. Use only PCDs that are on the approved ODOT Qualified Products List and are designed to be ADA compliant.

Provide pedestrian channelizing devices:

1. Between the TPAR and any adjacent construction site.
2. Between the TPAR and the vehicular way if the TPAR is diverted into the street.
3. Between the TPAR and any protruding objects, drop-offs, or other hazards to pedestrians.
4. At a curb ramp if the opposite curb ramp is temporarily and completely blocked and no adjacent alternate circulation path is provided.

I. When work briefly or intermittently blocks or restricts the use of a pedestrian route, and a temporary detour route is not practicable due to the short duration of the restriction, provide a temporary means of allowing pedestrian access through or around the work area. Means of providing temporary pedestrian accessibility may include but is not limited to temporarily suspending the work and making the pathway passable or using construction staff to guide pedestrians through or around the area. When a TPAR is created in the public right-of-way, both visual and audible warning shall be provided at both ends of the temporary pedestrian access.

J. When direction signing or warnings are provided, they should be located to minimize backtracking. Provide audible warnings for people who are blind or have low vision and include specific directions allowing them to find the desired path.

5.10.3 Temporary Road Closures

Temporary road closures are not for an Applicant's convenience or cost reduction. Proposed closures shall establish that a clear public safety and convenience benefit would result from a closure.

A. Road closures for construction require the approval of the City Engineer.

B. Projects should be evaluated for one-way flagging or other traffic control options prior to requesting a road closure. All other options must be exhausted before a road closure is reviewed for approval.

C. Temporary road closures on collectors and arterials are only allowed when there are other comparable streets (high-traffic streets) available for a detour.

D. The detour route shall be capable of safely and legally accommodating the detoured traffic.

E. With increasing Average Daily Traffic (ADT), functional classification, and closure duration, an Applicant's burden becomes greater in establishing the benefit of a proposed closure.

F. If a road closure is proposed, the following may be required:

1. Evidence that other methods of traffic control and/or temporary improvements are not feasible to keep the road open.
2. Time-of-day restrictions or extension of normal working hours and days.
3. Contract requirements of incentives/disincentives for completing/not completing a closure on time.

4. A public engagement plan.
5. Off-site improvements to meet the minimum safety of the detour route and/or to return the detour route to its original condition prior to the detour.

5.10.4 Impacts to Traffic Signals

A. In no case may flagging operations take place in conflict with the indications of an operating traffic signal.

B. No flagging operations may take place within 200 feet of an operating traffic signal without a custom traffic control plan subject to a permit.

C. Should traffic control requirements dictate the "turn-off" and/or "turn-on" of a traffic signal, the Applicant shall coordinate with the City Engineer at least two business days prior to turn-off and/or turn-on date.

5.10.5 Temporary Speed Reduction Process

For some projects, it may be necessary or advantageous to implement a temporary speed reduction through a work zone. The duration of the temporary speed zone reduction will vary based on the type and complexity of the work being done and how quickly the constraint or hazardous condition can be relieved or eliminated.

To obtain a temporary speed reduction in a work zone on a City street, the Engineer of Record and/or City Project Manager should complete the Work Zone Speed Reduction Request Form (Appendix B) and submit it to the City Engineer for review and approval.

A variety of circumstances can warrant a speed zone reduction, including:

A. Reducing the number of lanes for traffic.

B. Complex construction staging.

C. Temporary alignments, crossovers, or on-site diversions.

D. Nighttime paving operations on a high-speed, multilane facility.

E. Workers present for extended periods within 2 feet of travel lanes and not behind a barrier.

F. Lane widths (existing or due to construction) of less than 12 feet.

G. Horizontal curves with a safe speed of 10 mph or more lower than the posted speed.

H. Pavement edge drop-offs within 2 feet of the traveled way for more than ¼ mile.

5.10.6 Detour Routes

A traffic detour can be an effective traffic control measure within a traffic control plan. Detours for temporary road closures should follow the requirements outlined in the *Clackamas County Roadway Standards*, Section 290.5. When detours are considered, emergency services, solid waste disposal companies, and mail delivery must be notified.

The ODOT *Traffic Control Plan Design Manual* provides conditions for when a detour may be considered, including when:

A. The physical work area cannot support live traffic and construction activities concurrently.

B. The accelerated completion of a project is desired, and having uninterrupted use of the entire work site can facilitate a time-critical schedule.

C. Construction constraints (e.g., vehicle weight/size restrictions) require specific vehicle classes to be precluded from the work zone.

Routes designated as detours must be able to reasonably accommodate the detoured traffic. An overview of design considerations is below.

A. For signalized intersections along the detour route, consider adjusting signal timing while the detour is operating.

B. Detours that significantly impact unsignalized intersections may require temporary signals.

C. If a single roadway cannot manage the capacity of the detoured traffic, undesignated alternate routes can be offered to disperse traffic.

D. Extended distance detours may inadvertently divert traffic and impact travel time and facility wear and tear on alternate routes.

E. Detours must be designated using appropriate traffic control devices per MUTCD requirements and guidance.

F. Changeable message signs may help supplement fixed signs.

6.0 PAVEMENT DESIGN

Chapter 6 provides detailed City standards for pavement design.

6.1 GENERAL REQUIREMENTS

Pavement materials and construction work must comply with the current *Oregon Standard Specifications for Construction* unless stated herein. Abbreviations and terms used within this section are as defined or used in the *ODOT Standard Specifications for Construction* unless otherwise noted. Additional general requirements are described below.

A. Pavement designs must be developed and documented by an engineering report prepared and stamped by an engineer experienced in pavement design (Refer to Section 1.1.1). The report must include specific pavement design recommendations for materials and construction. Additionally, the report must include sufficient design documentation regarding site conditions, design assumptions, and design parameters to allow for independent peer review of the design recommendations. The engineering report must address considerations for year-round construction, including recommendations for both summer and winter construction.

B. If a pavement design is not provided, default pavement sections identified in Section 6.8 must be used.

C. Pavement materials for roadway construction must be recommended by the Engineer of Record and/or the City Project Manager. The report must describe the pavement type and reasoning behind the selected materials.

D. Street functional classifications specific to Oregon City pavements include arterials (major and minor), collectors, local commercial and industrial, and residential. Additional paved surfaces include alleyways, shared-use paths, and private streets.

E. The City Engineer must approve the use of pervious pavements, and the Engineer of Record and/or City Project Manager must include a stormwater analysis report. Specific pervious pavement design considerations are not included these *Standards.* If approved, the pavement report must include construction considerations, material properties and pavement thickness design calculations.

F. The City Engineer must approve all proposed alternative materials. Benefit analysis and reasoning (e.g., noise) is to be included in the pavement design report.

G. All asphalt pavement should be placed during temperatures that are 40 degrees Fahrenheit and rising.

6.2 DESIGN REQUIREMENTS

Design standards for the following categories can be found in the publications below.

A. **Asphalt concrete pavement (ACP)**: AASHTO *Guide for Design of Pavement Structures* (AASHTO Pavement Guide) and the design guidelines of the latest ODOT *Pavement Design Guide* (ODOT Pavement Guide).

B. **Portland cement concrete (PCC)**: 1998 *Supplement for Rigid Pavement Design* (AASHTO Pavement Supplement) or the StreetPave™ design software by the American Concrete Pavement Association (ACPA).

C. **Overall:** Latest ODOT *Pavement Guide* for general guidelines and inputs, unless specifically described herein.

6.2.1 Pavement Design Period

The pavement design period is for major widening (e.g., adding travel lanes), adding new pavement, or rehabilitating pavement. For minor widening (e.g., bicycle lanes), pavement thickness should match adjacent pavement. Table 6-1 provides a summary of pavement design periods.

Table 6-1: Pavement Design Period

Project Type	Design Period
Newly-constructed streets (including ½ streets and reconstructed streets)	30 years for flexible pavement 40 years for rigid pavement
Roundabouts	40 years for rigid pavement
Rehabilitation	Based on location and available funding
Major widening	20 years

6.2.2 Site Investigation

A. **Explorations:** Conduct sufficient soil and/or existing pavement explorations (at least 1 per 500 feet of roadway and at least 2 total) to visually classify the soils within a minimum of 3 feet below the planned subgrade surface. Conduct laboratory testing on samples of the subgrade soils, including determination of moisture content and soil classification tests (Atterberg Limits, gradation, etc.).

B. The Engineer of Record and/or City Project Manager must evaluate the subsurface exploration logs and the laboratory soils test data to determine if subgrade compaction is feasible, including a consideration of moisture conditions during construction and whether the compacted subgrade will support construction activities and traffic. If subgrade compaction is deemed feasible, the pavement section must be designed based on the subgrade support values determined from the laboratory tests of compacted subgrade. Compaction of the subgrade must be accomplished following the procedures and compaction criteria given in Oregon Standard Specifications for Construction 00330.43, including deflection testing according to ODOT Standard Drawing TM158.

    1. If subgrade compaction is not deemed feasible, the subgrade must be designed based on the in-situ subgrade capacity as defined by falling weight deflectometer (FWD), resilient modulus testing of in situ samples, or dynamic cone penetrometer (DCP) testing.

    2. The engineering report must include recommendations regarding the need for subgrade separation geotextile.

    3. The engineering report must include recommendations for increased subgrade stabilization and/or an additional aggregate base for winter construction. Options for the protection of native subgrade should include haul roads and/or staging plans to reduce vehicle-induced subgrade loads.

4. The Engineer of Record and/or City Project Manager should consult with the City Engineering Group regarding the potential for old market roads, underlying PCC, or historical data that may affect pavement rehabilitation performance.

C. **Subgrade support inputs:** Subgrade support values for the design of flexible pavement (resilient modulus) and rigid pavement (modulus of subgrade reaction or k-value) must be estimated by one or more of the following methods:

1. Estimate in situ subgrade support values by back calculation of FWD deflections measured on paved or aggregate surfaced areas within the project limits. FWD testing must be conducted following the American Society for Testing and Materials (ASTM) D 4694 and D 4695 with a deflectometer that has been calibrated within 12 months preceding the testing. Back calculate the elastic modulus of the subgrade soil for flexible pavement design per the back-calculation procedures described in the AASHTO *Pavement Guide* or other procedures meeting the guidelines of ASTM D 5858. Use the modulus correction factors given in the ODOT *Pavement Guide* to convert back-calculated elastic moduli into equivalent saturated laboratory resilient moduli. Back calculate the dynamic k-value of the subgrade for rigid pavement design per the back-calculation procedures described in the AASHTO Pavement Supplement and correct the dynamic k-value to static k-value using a factor of 0.5.

2. Estimate in situ subgrade support values by measuring subgrade soil penetration resistance using the DCP per ASTM D 6951. Estimate the subgrade resilient modulus for flexible pavement design from DCP Index (mm/blow) using the correlation given in the ODOT *Pavement Guide*. Use the modulus correction factors given in the ODOT *Pavement Guide* to convert DCP-determined resilient moduli into equivalent saturated laboratory-resilient moduli. Estimate the subgrade static k-value for rigid pavement design from DCP Penetration Rate (inches/blow) using the correlation given in the AASHTO Pavement Supplement.

3. Determine in situ resilient modulus by laboratory testing of push tube samples of subgrade soil. Conduct the resilient modulus testing in general accordance with AASHTO Pavement Supplement T-307. Evaluate resilient modulus at a deviator stress of 6 pounds per square inch (psi) at a confining pressure of 2 psi.

4. Determine the resilient modulus of compacted subgrade by testing laboratory compacted subgrade soil. Compact the subgrade sample to 95% of standard Proctor maximum dry density at a moisture content of 1-2 percentage points above standard Proctor optimum moisture content. Conduct the resilient modulus testing using the ODOT testing protocol. Evaluate resilient modulus at a deviator stress of 6 psi at a confining pressure of 2 psi.

5. For rigid pavements, estimate the k-value of compacted subgrade by California Bearing Ratio (CBR) testing of a laboratory compacted subgrade soil. Compact the subgrade sample to 95% of standard Proctor maximum dry density at a moisture content of 1-2 percentage points above standard Proctor optimum moisture content. Conduct the CBR testing per ASTM D 1883 using surcharge weight equivalent to the proposed pavement section. Estimate the static k-value from the CBR value using the correlation given in the AASHTO Pavement Supplement.

6. In place of testing to establish subgrade support values, presumptive design values of 3,500 psi for resilient modulus and 50 pci for k-value may be used.

6.3 TRAFFIC LOADING ANALYSIS

A. The pavement design traffic loading is the total number of 18-kip equivalent single axle load (ESAL) repetitions that the pavement is expected to experience during the design period. The pavement design report must include a detailed description of design traffic loading and calculation steps used to generate the design ESAL. Traffic data or traffic studies used for generating pavement design ESAL must be no more than 4 years old.

B. For rehabilitation and widening, ESAL is to be determined by daily traffic volumes, heavy vehicle percentage, traffic growth, and traffic classification counts with the distribution of heavy vehicle volumes according to the FHWA axle classifications and projected growth rate in heavy vehicle volumes during the design period. For local residential, the classification counts can be assumed if a valid basis for assumptions is presented in the pavement report. Widening design must consider the potential for new traffic volumes and additional lanes.

C. For new roads, the Engineer of Record and/or City Project Manager must complete a traffic study that identifies the distribution of heavy vehicle volumes, traffic growth, and the expected types of trucks and truck frequencies. For specific heavy truck generation sites, a detailed account of trucks, truck types, and per-truck ESAL calculations are to be provided in the pavement design report.

D. Daily heavy vehicle volumes must be multiplied by the conversion factors for FHWA heavy vehicle classes shown in the ODOT *Pavement Guide*, with the exception that buses should be broken down into school buses, two-axle transit buses, and articulated buses. Specific site traffic should have a site-specific per-truck ESAL if appropriate. (See Table 6-2).

E. The presumptive traffic loadings shown in Table 6-3 may be used as design values instead of a detailed traffic analysis. Lower assumed values than those shown in Table 6-3 may be used for rehabilitation if the reasoning is provided in the pavement design report and the values are accepted by the City Engineer.

F. The traffic loading for circulatory lanes within roundabouts must be calculated as two times the highest traffic loading on the approach lanes to account for the combined loading from the approaches. An alternative turning movement analysis can be conducted to calculate the roundabout quadrant with the highest traffic.

G. If using StreetPave™-based rigid design, load spectrum traffic analysis is required. The Engineer of Record and/or City Project Manager should use site-specific total truck traffic, with the default typical traffic category corresponding to the road type. For transit bus routes, default to the major arterial traffic category.

H. In no case shall the design ESAL be less than 40,000 for new or reconstructed pavement.

Table 6-2: Bus ESAL Conversion Factors

Bus Type	Daily Bus Volume to Annual ESAL Repetitions Conversion Factors	
	Flexible Pavement	Rigid Pavement
Weight-restricted buses, school buses	246	269
2-axle transit buses	780	1170
Articulated transit buses	1550	2320

Table 6-3: Presumptive Traffic Loadings

Road Type	Flexible Pavement 30-Year ESAL Repetitions	Rigid Pavement 40-Year ESAL Repetitions
Local Residential[1]	40,000	70,000
Local Commercial/Industrial	1,200,000	2,100,000
Collector	1,000,000	1,800,000
Arterial	2,000,000	3,500,000

[1] Use Commercial/Industrial Functional Classification traffic loadings if street will be used by a TriMet bus line or similar shuttle buses.

6.4 FLEXIBLE PAVEMENT THICKNESS DESIGN CRITERIA

Use the design parameter values in Table 6-4 for flexible pavement design.

Table 6-4: Flexible Pavement Design Parameter Values

Parameter	Design Value
Design Reliability Level	90% Arterial, Collector, Local Commercial/Industrial & Bus Routes; 80% Local Residential & Neighborhood Routes
Initial Serviceability, Po	4.2
Terminal Serviceability, Pt	2.5
Standard Deviation	0.49
New Asphalt Concrete Layer Coefficient	0.42
New Aggregate Base Layer Coefficient	0.10
New Aggregate Base Resilient Modulus, psi	20,000
New Aggregate Base Drainage Coefficient	1.0
New Aggregate Subbase Layer Coefficient	0.08
New Aggregate Subbase Resilient Modulus, psi	11,200
New Aggregate Subbase Drainage Coefficient	1.0

A. The pavement section must be designed using the Layered Design Analysis method described in Part II of the AASHTO *Pavement Guide*. The calculated pavement thickness should be rounded up to the nearest 0.5 inch.

B. The minimum roadway asphalt concrete (AC) section thickness is 4 inches, consisting of a 2-inch-thick base lift and 2-inch-thick wearing course. The minimum AC section for shared-use paths and alleys is 3 inches placed in a single lift.

C. The minimum thickness of the aggregate base is 6 inches. A geotechnical engineer should provide analysis of rock sections' suitability to support construction traffic. Analysis should consider the construction time of year. A design acceptance may be provided for pavement in areas with shallow basalt.

D. Full-depth reclamation or amended subbase with cement can be included if laboratory testing and design are provided in the engineering report. The layer coefficient must be 0.16, where at least 50% (by weight) of the existing material to be treated is granular. Otherwise, the layer coefficient must be considered equal to the aggregate subbase (0.08).

E. The asphalt concrete pavement (ACP) should be ½- or ¾-inch dense, according to City modifications to Oregon Standard Specifications for Construction 00744. A request can be made for a lower nominal maximum aggregate size for thin lift paving if accepted by the City Engineer.

F. Minimum and maximum lift thicknesses are 2 and 3 inches, respectively, for ½- or ¾-inch-dense ACP.

G. Compact asphalt concrete to a minimum of 92% of moving average maximum density (MAMD) all lifts.

H. Default binder for ACP is PG 64-22 for local, commercial, and collectors and PG 70-22 for arterials; however, the binder grade should be adjusted depending on aggregate gradation, traffic levels, and the amount of recycled asphalt material. The use of PG 64-22 binder for base paving lifts below the top 4 inches on arterials should be considered. Binder grade discussion and reasoning must be submitted in the engineering report.

I. Rigid pavement with impact slabs is required for public transit bus stops. Flexible pavement at bus stops will only be considered with prior City Engineer approval and will require a separate pavement design to address bus loading.

J. Impact slabs are required for all transitions from flexible pavement to rigid pavement, including rail crossings.

K. For newly-constructed residential streets, pavement design and construction should include all asphalt layers placed before building construction. If staged flexible pavement (first lift placed, then building construction, then final lift) is preferred, the pavement design must take construction vehicles, time of year, and drainage into account. The staging of street construction in this manner must be approved by the City Engineer.

L. Tack coat must be used for all paving lifts unless paving occurs on same day.

6.5 RIGID PAVEMENT THICKNESS DESIGN CRITERIA

Refer to Table 6-5, Table 6-6, and the following criteria for rigid pavement thickness design.

A. Rigid pavement cannot be used for half-street or widening design when adjacent to flexible pavement.

B. Rigid pavement must be used for widening design when adjacent to rigid pavement. Joints must either line up, or isolation joints must be used. No-load transfer should be used for widening.

C. Rigid design is to be completed according to the AASHTO Pavement Supplement or StreetPave™ system. Other design methodology can be used only if accepted by the City Engineer.

D. The minimum portland cement concrete slab thickness is 6 inches—except for streets with transit or shuttle bus traffic, for which the minimum slab thickness is 8 inches.

E. The minimum thickness of the aggregate base is 4 inches. A geotechnical engineer analyze the aggregate base suitability to support construction traffic and should consider the construction time of year.

F. The slab thickness design must consider the slab edge support condition as defined within the AASHTO Pavement Supplement and/or StreetPave™.

G. Requirements under Oregon Standard Specifications for Construction 00756.60 must be met before opening to traffic.

Table 6-5: Rigid Pavement Design Parameter Values (AASHTO Pavement Supplement)

Parameter	Design Value
Design Reliability Level	90% arterial, collector, commercial, and bus routes. 80% local residential and neighborhood routes.
Initial Serviceability, Po	4.5
Terminal Serviceability, Pt	2.5
Standard Deviation	0.40
28-day Flexural Strength, psi	600
Modulus of Elasticity of Concrete, psi	3,600,000
Modulus of Elasticity of Base Material, psi	Median value from Table 14 of AASHTO Supplement for the base type.
Drainage Coefficient for Faulting Analysis	0.80
Poisson's Ratio of PCC	0.15
Edge Support Adjustment Factor	As recommended in AASHTO Supplement for the type of edge support.
Friction Coefficient between Slab and Base	Median value from Table 14 of AASHTO Supplement for the base type.
Mean Annual Wind Speed, mph	7.9
Mean Annual Temperature, °F	53.6
Mean Annual Precipitation, inches	36.3
Moisture Gradient a Construction Temperature Differential in Slab	1 °F per inch of slab thickness.
Mean Annual Freezing Index	33-degree (F) days
Annual Temperature Range, °F	46.6
Number of Days with Maximum Temperature above 90 °F	10.8

Table 6-6: Rigid Pavement Design Parameter Values (StreetPave™)

Parameter	Design Value
Design Reliability Level	90% arterial, collector, commercial, and bus routes 80% local residential and neighborhood routes
Terminal Serviceability	2.5
28-day Flexural Strength, psi	600
Modulus of Elasticity of Concrete, psi	3,600,000
Slabs Cracked	5%
Drainage Coefficient for Faulting Analysis	0.80
Poisson's Ratio of PCC	0.15
Edge Support	Default no edge support.
Macro Fibers in Concrete	Default to no. maximum of 15% residual if approved by City.

6.6 RIGID PAVEMENT JOINTING DESIGN CRITERIA

A. For rigid pavements, the pavement design report must provide maximum joint spacing. A jointing plan must be included in the project plans and must show the construction joints and transverse/longitudinal joints in the concrete pavement to control cracking. The jointing plan must show, at a minimum, the following: manholes, valve boxes, inlets, joint layouts, dowels, tie bars, and other required reinforcement and joint details (including sawing depths).

B. The joint layout must be designed per American Concrete Pavement Association (ACPA) recommendations and the criteria described herein. Projects must avoid or minimize joints that intersect another joint or the pavement edge at an angle of fewer than 60 degrees, interior corners (L-shaped slabs), slabs less than 1 foot wide, and odd shapes (keep slabs rectangular, trapezoidal, or triangular). Isolation joints shall box out utility fixtures and isolate them from the main slab. Fixtures must be located so the joints are centered on the box-outs or coincide with the isolation joints around the box-outs.

C. Gutter joints must align with the transverse joints on the adjoining slab unless an isolation joint is placed between the gutter and the slab. Design with isolation joints can allow offset of transverse to gutter joints; however, the pavement design must take edge conditions into account.

D. Longitudinal joints must coincide with lane lines. Note that on streets with an odd number of lanes, this will require an offset crown. Spacing between longitudinal joints cannot exceed 15 feet or 24 × slab thickness on unbound base or 21 × slab thickness on stabilized base—whichever is less.

E. Transverse contraction joints must be spaced at relatively equal intervals and be close to the same spacing as the longitudinal joints so that the panels are relatively square. The ratio of the maximum to minimum slab dimensions (aspect ratio) formed by joints must not exceed 1.25.

   Spacing between transverse joints must not exceed 15 feet or 24 × slab thickness on unbound base or 21 × slab thickness on stabilized base—whichever is less. If the aspect ratio cannot be met, the slabs must be reinforced with the #5 bar at 12 inches on centers.

F. Transverse joints (sawed or construction) in plain concrete pavement slabs 7 inches thick or greater must be dowelled. All joints within intersections must be dowelled when dowels are needed on the transverse joints in one of the approach lanes. Plate dowels are allowed. Dowel installation must be per Oregon Standard Specifications for Construction 00756.43(a).

G. All joints must be sealed with joint sealant listed on the ODOT Qualified Products List (QPL) and placed in a joint reservoir sized in accordance with the recommendations of the joint sealant manufacturer. (Typically, the reservoir width should be twice the sealant depth for silicone sealant). The sealant must be supported by a backer rod of the size and material recommended by the joint sealant manufacturer. The top of the sealant must be recessed below the slab surface by 0.125–0.375 inch.

6.7 STRUCTURAL REHABILITATION DESIGN

A. Pavement coring performed at representative locations shall be used to determine the thickness and composition of the pavement materials and evaluate the cracking depth, investigate the cracking mode (top-down or bottom-up), investigate for moisture-induced damage (asphalt stripping damage), determine delamination within the pavement. Areas of moderate-to-severe distress that are structural must be identified. Additional cores should be obtained if there are multiple travel lanes in one direction.

B. Field investigation with falling weight deflectometer (FWD) testing of existing industrial, collector, and arterial pavement is recommended to determine the structural condition and remaining structural life.

   1. FWD testing will be conducted following ASTM D 4694 and D 4695.

   2. The FWD test data must be analyzed to delineate analysis units representing segments having distinctly different structural characteristics.

   3. The in situ resilient modulus of the subgrade and the effective structural number of the existing pavement structure must be estimated from back-calculation analysis of the FWD test data using the back-calculation analysis procedure described in the AASHTO *Pavement Guide* or other procedures meeting the guidelines of ASTM D 5858.

C. The investigation must also include a visual survey of pavement distress. A distress survey must identify the pavement condition concerning rehabilitation needs. Areas of moderate-to-severe distress that are structural must be identified.

D. If the FWD test is not used, resilient modulus should be determined by one of the options listed under the “Subgrade Supports Inputs” section of these *Standards*. Layer coefficients for surfacing should be based on a visual condition assessment and the values listed in Table 5.2 of the AASHTO *Pavement Guide*. Layer coefficients for the base should be based on dynamic cone penetrometer (DCP) testing in conjunction with Figure 2.7 in the AASHTO Pavement Guide.

E. Design for structural rehabilitation of existing pavement must be accomplished using the procedures described in Part III of the AASHTO *Pavement Guide* and the rehabilitation design guidelines in the ODOT *Pavement Guide*. Rehabilitation recommendations must consider measures for mitigation of reflective cracking, layer delamination, and stripping.

F. Rehabilitation design must include detailed information regarding pavement repair through dig-out and variable grind depths. Design must also include design section as well as location and approximate quantities.

6.8 DEFAULT PAVEMENT SECTIONS

The default pavement sections are based on conservative design criteria, including anticipated traffic and construction vehicle loading under poor soil conditions. These assumptions may not be representative of typical conditions for many locations. For local roads, use the commercial/industrial pavement section if a transit bus line or similar shuttle buses will use the street. Roundabout design must be site specific and cannot use the below default values.

Materials, construction practices, and general information from Sections 6.4 (Flexible Pavement) and 6.5 (Rigid Pavement) should be followed.

Table 6-7 provides default asphalt concrete pavement section information. Table 6-8 provides information for standard rigid pavement section.

Table 6-7: Default Asphalt Concrete (AC) Pavement Section

Functional Classification	Thickness				AC Mix Design Level[6]
	AC Wearing Course[1]	AC Base Course[2]	¾-inch – 0 Leveling Aggregate	Aggregate Base Course[3,4,5]	
Arterial	2”	7”	2	14”	3
Collector	2”	6”	2	14”	2
Local Commercial/Industrial	2”	6”	2	12”	3
Local Residential	2”	2”	2	10”	2
Alley	3”	N/A	2	8”	2
Shared-Use Path	3”	N/A	6” of ¾-inch – 0 Aggregate		2

[1]Use ½-inch-dense ACP. Place in one lift. Conform to mix design levels as shown in the table. Use PG 70-22 binder for arterial and PG 64-22 binder otherwise.

[2] Use ½-inch-dense ACP. Place in lift thicknesses from 2 to 3 inches. Conform to mix design levels as shown in the table. Use PG 70-22 binder for asphalt concrete surfaced pavement for top 4 inches on arterials and PG 64-22 binder elsewise.

[3] Use ¾-inch-0 or 1 1/2-inch-0 dense graded base aggregate meeting the requirements of Oregon Standard Specifications for Construction 00641.

[4] Aggregate base thickness may need to be increased for constructability in areas of soft or wet subgrade.

[5] Subgrade geotextile is required below the aggregate base for silt and clay subgrade types.

[6] Collector may require Level 3 for roads identified as transit or trucking routes and with ESAL 1,000,000 or greater. Arterial may require mix design level 4 for ESAL in excess of 10,000,000.

[7] A pavement design to accommodate anticipated traffic loadings and existing soil conditions shall be submitted to the city engineer for approval. ACP shall be compacted to 92% max density (rice density) per AASHTO T-209.

[8] Subgrade and base rock shall be compacted to 95% relative density per AASHTO T— 180.

Table 6-8: Standard Rigid Pavement Section

Functional Classification	Thickness		
	PCC [1, 2]	AC Base Course[3]	Aggregate Base Course[4,5,6]
Arterial	9”	4”	8”
Collector	8”	4”	8”
Local Industrial/Commercial	8”	4”	8”
Local Residential	8”	N/A	6”

[1] Use Class 4000, 1.5-inch paving concrete.

[2] Use epoxy-coated 18-inch-long smooth circular stainless steel dowel bars at 12-inch spacing along all transverse joints. Bars should be coated with a bond breaker to be approved by the City Engineer. For 7- to 8-inch-thick PCC slab, use 1-inch diameter bars, for 9- and 10-inch-thick PCC slab, use 1.25-inch diameter bars. For slabs less than 7 inches thick, joints should be un-doweled.

[3] Refer to Section 6.6 for further jointing criteria.

[4] Use ½-inch-dense ACP. Place in lift thicknesses from 2 to 3 inches. Conform to mix design levels as shown in the table. Use PG 64-22 binder for asphalt concrete.

[5] Use ¾-inch-0 or 1 1/2-inch-0-dense graded base aggregate meeting the requirements of Oregon Standard Specifications for Construction 00641.

[6] Aggregate base thickness may need to be increased to 12 inches or more for constructability in areas of soft or wet subgrade.

[7] Subgrade geotextile is required below the aggregate base for silt and clay subgrade types.

7.0 STORMWATER

Chapter 7 provides an overview of City stormwater standards and primarily refers to the City *Stormwater and Grading Design Standards* for detailed requirements.

7.1 GENERAL DESIGN REQUIREMENTS

Stormwater design must include provisions to adequately control runoff development as defined by the City. The design must ensure the future extension of the stormwater drainage system to the entire drainage basin in conformance with the adopted City Stormwater Master Plans as well as the *Stormwater and Grading Design Standards*.

Design requirements include the following:

A. The approved point of disposal for all stormwater must be discharged at the existing natural drainage outlet or outlets. Runoff is not allowed to flow over adjacent public or private property at a rate, volume, or location materially different from that which existed before development occurred.

B. The peak runoff from all applicable designs must not be more than what existed before development. Retention and/or detention facilities are required where necessary to meet this requirement. Additional flow control requirements, as stated in the *Stormwater and Grading Design Standards* and adopted Stormwater Master Plan, must also be met as applicable.

C. Vegetation must be established on areas disturbed or on areas of construction, as necessary, to minimize erosion per the City's *Stormwater and Grading Design Standards*.

D. Stormwater facilities must control the discharge of pollutants according to the City's *Stormwater and Grading Design Standards*.

E. All stormwater drainage system designs must make adequate provisions for collecting all stormwater runoff. The system must be able to accommodate all runoff from upstream tributary areas, and the amount of runoff to be accommodated will be based on the ultimate development of all upstream tributary areas.

F. Swale breaks must be provided in stormwater planters around light poles.

G. For information on drainage curbs, refer to ODOT Specifications and ODOT Standard Drawings.

H. Green street infrastructure is encouraged when applicable to manage stormwater, treat runoff to reduce pollution and infiltrate water into the ground, and limit how much stormwater and pollutants eventually make their way into vulnerable natural waterways.

7.2 MINIMUM DESIGN CRITERIA

Refer to the *Stormwater and Grading Design Standards* for the minimum stormwater design criteria.

7.3 ALIGNMENT AND COVER

Refer to the *Stormwater and Grading Design Standards* for standards on alignment and cover.

7.4 PIPE MATERIAL AND SIZE

Pipe material and size must meet the requirements in the *Stormwater and Grading Design Standards.*

7.5 STRUCTURES

Refer to the *Stormwater and Grading Design Standards* for requirements for stormwater structures.

7.6 CULVERTS

Water crossing structures on all creeks and tributaries must not impede or eliminate a native fish species' access to habitat or ability to migrate. In general, projects should use bridge crossings rather than culverts wherever possible. If culverts are used, install slab, arch, or box type culverts, preferably using bottomless designs that more closely mimic stream bottom habitat. Proposed culvert crossings, regardless of tributary size or whether they are intermittent or perennial, must conform to Oregon Department of Fish & Wildlife and National Marine Fisheries Service's regulations and stream crossing guidelines. In addition to designing stream crossings for fish passage, culverts should include shelves and other design features to facilitate terrestrial wildlife passage.

Culverts within roadside ditches not deemed jurisdictional waterways and 18 inches in diameter or larger must have riprap installed at the inlets to protect from erosion. All riprap must be lined with drainage geotextile. Riprap for culvert outlets must be in accordance with the *Stormwater and Grading Design Standards*.

Cross culverts require headwalls in accordance with the *Stormwater and Grading Design Standards*.

Additional requirements may apply to meet State and Federal permitting requirements, which depend on the type of permit (Refer to Section 2.2).

7.6.1 Inlet and Outlet Control Analysis

The headwater depth for pipes under inlet or outlet control must be determined using the nomographs contained in the ODOT *Hydraulics Manual*.

7.6.2 Headwalls and Endwalls

Pipe headwalls, endwalls, or other approved end protection are required (1) where pipe material other than concrete or ductile iron is exposed in the design of an outlet or inlet pipe; (2) where required to provide slope stability; or (3) if properly-sized riprap cannot provide sufficient energy dissipation. Headwalls and endwalls must meet the requirements in the *Stormwater and Grading Design Standards*. In addition, the locations of the headwalls and endwalls relative to the edge of travel should be evaluated to meet roadside clearance (See Section 3.6).

7.7 CONVEYANCE SYSTEMS

Conveyance systems must be designed according to the *Stormwater and Grading Design Standards*. If a project uses an existing, undersized storm conveyance system, there must be a 1-foot minimum freeboard between the hydraulic grade line and the top of the structure or finish grade above pipe for the conveyance design storm post-development peak rate of runoff.

7.8 STORMWATER FLOW CONTROL

Stormwater flow control must comply with the *Stormwater and Grading Design Standards*.

7.9 STORMWATER QUALITY TREATMENT

Stormwater quality treatment must comply with the *Stormwater and Grading Design Standards*.

7.10 EROSION PREVENTION AND SEDIMENT CONTROL

Erosion prevention and sediment control must comply with the *Stormwater and Grading Design Standards*.

8.0 UTILITIES

Chapter 8 provides information on public and private utilities and the requirements for each type.

8.1 PUBLIC-OWNED UTILITIES

A. Public-owned facilities include the sanitary sewer, storm drainage, and water distribution system.

B. Refer to the *Sanitary Sewer Design Standards* and *Sewer Pump Station & Force Main Design Standards* for detailed design information and to Std. Dwg. OC513 for utility line placement.

C. Refer to the *Water Distribution System Design Standards* for detailed design information and to Std. Dwg. OC513 for utility line placement.

D. Refer to the *Stormwater and Grading Design Standards* for detailed design information and to Std. Dwg. OC513 for utility line placement.

E. Utilities must not be located under the curb or on ADA ramps; refer to Std. Dwg. OC513 for utility line placement.

8.2 PRIVATE UTILITIES IN PUBLIC RIGHTS-OF-WAY

A. Existing Facilities

1. All private utility construction should adhere to OCMC 13.34 Utility Facilities in Public Rights-of-Way and established City franchises.
2. Private utility systems shall not impede public infrastructure. All facilities shall abide by National Electric Safety Code, the ADA, and the locations outlined below.
    a. Utility facilities shall be placed in the public utility easement. The City Engineer must approve locations outside of easements.
    b. No utility shall cause a safety hazard in City right-of-way (ROW), including crash hazards, ADA non-compliance, and sight distance issues.
    c. Support structures shall be used jointly in City ROW; no double pole locations are allowed.

B. New Facilities

1. New facilities refer to new installations and relocation of existing utilities.
2. All new development installations should adhere to OCMC Chapter 16.12.095.
    a. Poles must be relocated to the abutting development property line.
3. All new utilities shall be placed in a public utility easement (PUE) unless approved by the City Engineer.

All utilities shall abide by Oregon State statutes. The use of City right-of-way is subject to national joint-use notification regulations and Oregon joint-use association requirements.

8.3 PUBLIC UTILITY EASEMENTS

8.3.1 Public Utility Easement

The minimum width for a public utility easement (PUE) must be 10 feet or 5 feet, as shown in Std. Dwg. OC513 and OCMC 16.12.085 or as approved by the City Engineer. The PUE shall be located along all property lines adjacent to public rights-of-way. The City may require a larger PUE in commercial and industrial areas and where right-of-way widths are constrained. See Std. Dwg. OC513 for easement grading requirements.

8.3.2 City-Owned Easements

A. Public water lines shall be located in the public right-of-way. A public water line may only be located on private property upon approval and at the sole discretion of the City Engineer. A public water line on private property shall be centered within a permanent water facilities easement granted to the City. The easement shall have a minimum width of 15 feet along its entire length when placed in a roadway, parking area, or another hardscaped surface. The easement shall have a minimum width of 20 feet in unimproved or landscaped areas where vehicular access is not normally available. Table 8-1 provides minimum easement widths consistent with the City *Sanitary Sewer Design Standards* and City *Water Distribution System Design Standards*.

Table 8-1: Minimum Easement Widths

Easement Type	Width (ft)
Public Utility Easement (PUE)	10'/5'
Public Water Easement (paved surface)	15'
Public Water Easement (un-paved surface)	20'
Public Sewer or Storm Easement (paved surface)	15'
Public Sewer or Storm Easement (un-paved surface)	20'
Public Sewer Easement (15-inch diameter and greater and/or 15 ft sewer depth and greater)	20'
Shared (Parallel) Public Sewer Easement	25'
Access and Maintenance Easement	20'

B. Public sanitary sewer lines shall be located in the public right-of-way. A public sanitary sewer line may only be located on private property upon approval and at the sole discretion of the City Engineer. A public sanitary sewer line on private property shall be centered within a permanent sanitary sewer easement granted to the City.

C. Public storm and sanitary sewer located on private property shall be located within a permanent public storm and/or sanitary sewer easement granted to the City, with a minimum width of 15 feet along its entire length. Parallel public storm and sanitary sewer sharing an easement require the easement width to be increased to a minimum of 25 feet. Shared easements require City Engineer approval.

D. The required width of an easement may be greater than the minimum requirement based on the surrounding conditions and property line configurations. There may be additional restrictions on the setback of structures near an easement to comply with building codes.

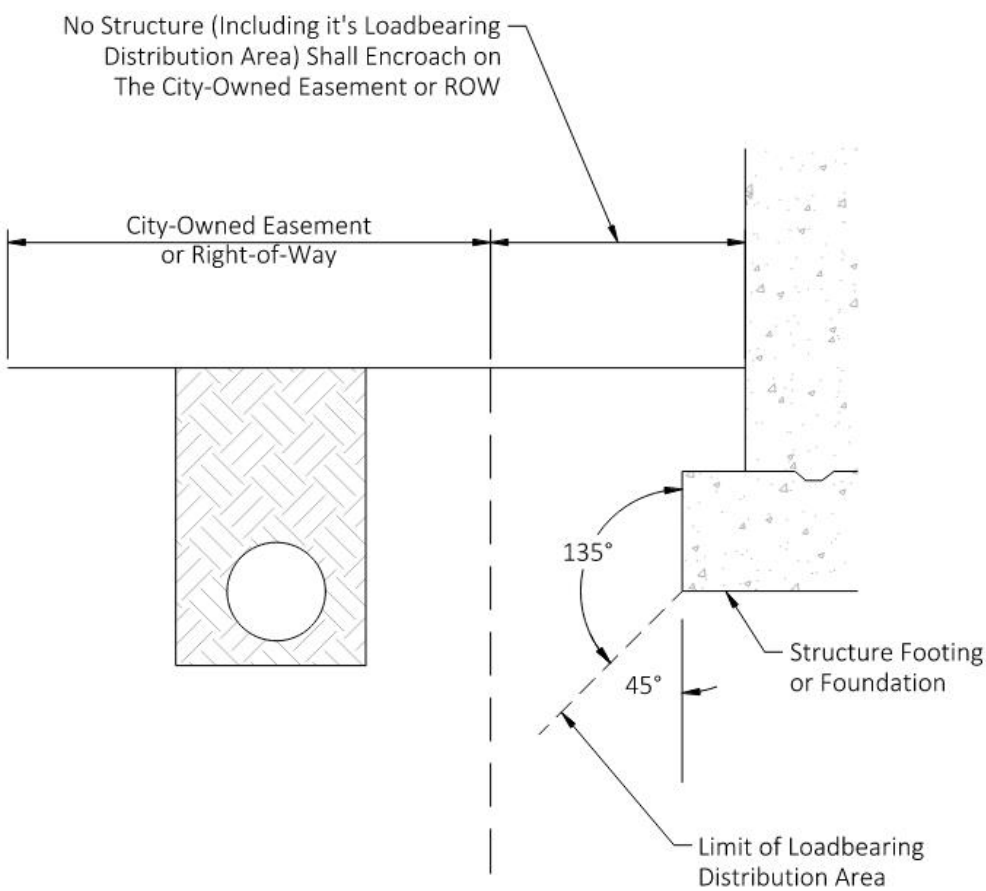
E. A 20-foot-wide permanent access and maintenance easement to benefit the City may be required in instances where City-owned infrastructure is inaccessible by way of the permanent easement. The access and maintenance easement shall be along a route that the City's maintenance vehicles can access.

F. Encroachments

1. There shall be no encroachment within a City-owned easement by a privately-owned structure, building, building overhang, retaining wall, monument sign, or any other object (including a structure's loadbearing distribution area as defined in Figure 8-1) that would adversely affect the City's ability to maintain public utilities.

2. There shall be no parallel encroachment within a City-owned right-of-way or easement (including a PUE) by a private utility facility or structure (including a structure's loadbearing distribution area as defined in Figure 8-1) without prior written approval by the City. Private utilities shall cross City-owned easements at right angles. Private utility facilities and structures shall not be placed within the pipe zone. The City will not approve any encroachment that would adversely affect the City's ability to maintain public utilities.

Figure 8-1: Loadbearing Distribution Area



G. Easement forms are subject to the approval of the City before recording.

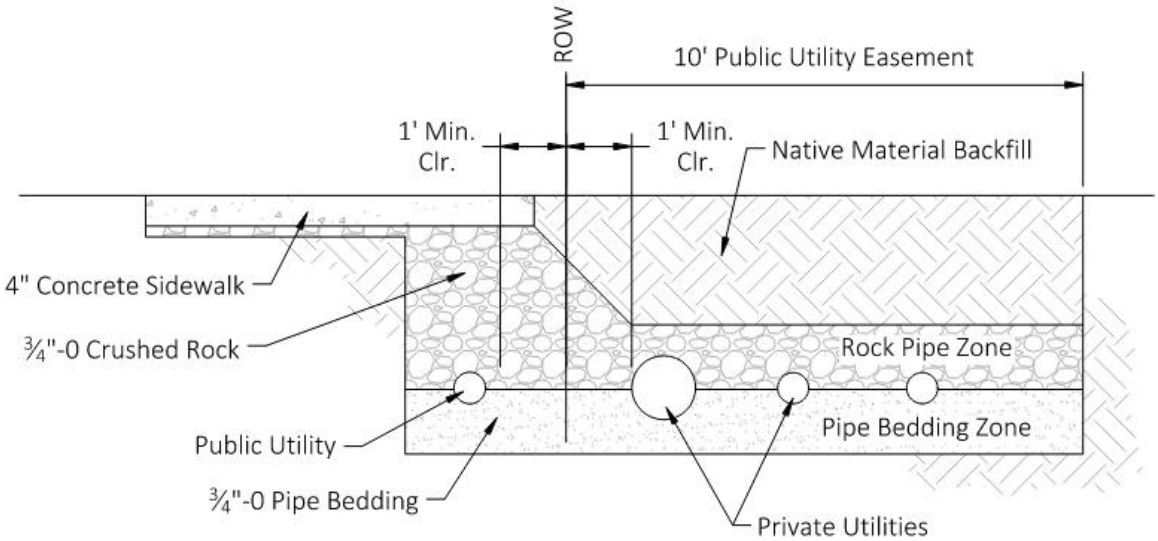
H. All recording costs for easements created by private development shall be borne by the developer.

I. The construction plans must show all existing and proposed easements. This includes the easement type and recorded document information. All proposed easements shall include a blank space for final recording numbers to be added to the record drawings.

J. Overhead utilities must meet the clearances as outlined in the National Electrical Safety Code (NESC) 234 Clearances to Other Structures.

K. Figure 8-2 provides an example of the shared utility trench option.

Figure 8-2: Shared Utility Trench Option



9.0 STREET LIGHTING

Chapter 9 provides street lighting standards for the City. Street lighting levels shall follow PGE standards for all PGE-owned lights. For City lights, a lighting analysis should be completed during the design and approved by the City Engineer.

9.1 PORTLAND GENERAL ELECTRIC (PGE) AND CITY AGREEMENTS

PGE and City Agreements are described in Table 9-1.

Table 9-1: PGE and City Agreements

PGE Option	Description
A	Developer to pay line extension fee, install PGE-provided light pole foundations, developer-provided junction boxes, and conduits with tracer wire. PGE to install the remaining equipment and own and maintain the street lighting system.
B	This option is **not** allowed within the City.
C	Developer to install the street lighting system, pay the line extension fee, and maintain the system through the maintenance period. Beyond the maintenance period, the City will own and maintain the street lighting system. Option C includes streets in the Downtown District and Washington Street, 7th Street, and Molalla Avenue.

9.2 PGE-RELATED DESIGN

A. The Engineer of Record and/or City Project Manager is responsible for arranging with PGE to connect the street lighting system to the local distribution system and for locating the service cabinet.

B. Street lights and poles shall be designed to be PGE Schedule 95 (by City direction only) or Option A (PGE-owned and maintained) or Option C (City-owned and maintained) light emitting diode (LED) lights. All Option C lights must be connected to a City-owned service and meter. The City has the final approval authority on which luminaire to use based on the specific lighting application. For Option C, luminaire information is shown on OC 536.

C. For Option A, refer to PGE's Approved Equipment List for all items, including luminaires, foundation, poles, junction boxes, photocell, etc.

9.3 LIGHTING DESIGN CRITERIA

The lighting design criteria noted below applies to both Option A and Option C.

A. All street lighting shall be designed by a licensed professional engineer (See Section 1.1.1) using the provisions in these *Standards*, and, where applicable, the current version of ANSI/IES RP-8 *American National Standard Practice for Roadway Lighting*.

1. Pedestrian-scale lighting should be adequate to illuminate pedestrian facilities that are a part of transit-oriented districts, town centers and plazas, off-street pathways and shared-use paths, or other areas identified in the Oregon City TSP or other area-specific plans. Typically, this lighting is positioned over the sidewalk rather than the street and is equal to or less than 16 feet above the sidewalk. All pedestrian-scale lighting equipment shall be approved by the City Engineer. Accessway lighting shall be to a minimum level of one-half (0.5) foot candle, a one and one-half (1.5) foot candle average, and a maximum to minimum ratio of seven-to-one (7:1) and shall be oriented not to shine upon adjacent properties. Street lighting shall be provided at both entrances.
2. Illumination shall be provided and evaluated at midblock crossings per ANSI/IES RP-8.

B. All electrical components shall be Underwriters' Laboratories (UL)-approved and testing lab-approved from labs accepted by the State of Oregon.

C. Street illumination design and installation shall conform with the Oregon Standard Specifications for Construction, Oregon Standard Drawings, and City Standard Drawings.

D. All street light plans shall include pole location by station, wiring, conduit, junction boxes, photocells, controller cabinets, power source location, lighting analysis output points, driveway locations, trees, and any other pertinent information. All backup lighting analysis, line loss, and service cabinet circuit load calculations shall be submitted for review along with the plans.

E. All street lights shall be LED.

F. The lighting plans shall include general installation notes, including the type, manufacturer, catalog number, number of LEDs, wattage, mounting height, arm length, and specification of the proposed equipment. Plans shall also include the wiring and circuit diagrams. The lighting color/temperature, and dark sky characteristics are per the PGE approved list and City standard drawings.

G. The lighting plans shall include photometric data, such as average foot-candles, average to minimum ratio, maximum to minimum levels, and lamp lumen depreciation factor. Photometric calculations shall be provided using separate calculation zones for roadway, intersection, and pedestrian facilities. The plans shall indicate the roadway and intersection functional classifications and pedestrian conflict assumed for calculations. An electronic file of the photometric calculations shall be provided as a PDF file.

H. Circuits and cable runs shall be designed to provide separate and independent circuits for street lights. Wire size shall be determined by the loading and distance of each circuit. Loading calculations shall be based on the maximum loading possible for the circuit, assuming all fixtures are operating at the maximum output for the highest drive current for the fixture. Wire shall be sized to limit voltage drops to a maximum of 2% between the utility service connection and the control panel and a maximum of 3% from the control panel to the most distant fixture served. The Engineer of Record or City Project Manager must submit an electronic file of the voltage drop/line loss calculations for the City Engineer to approve.

I. Photometric analysis shall include only light fixtures that are within the right-of-way. Light sources on private property cannot be included in the street lighting analysis.

J. Photometric analysis shall include only light fixtures installed as part of the project for which the analysis pertains and existing light fixtures within the right-of-way. Street lighting analysis shall not include future light fixtures for roadways planned to be 2-3 lanes wide, but it is allowed for roadways planned to be greater than 4 lanes wide.

K. Lighting design shall account for a modified photometric distribution when glare shields are used.

L. A 10-day burn-in period shall be completed before the City's final acceptance of the street lights that are either metered or fall under PGE's Option C standard.

M. The Engineer of Record or City Project Manager shall submit items for materials review to the City Engineer before ordering any street lighting equipment (poles, light fixtures, lighting controls, control nodes, junction boxes, foundations, services, cabinets, etc.) and pass applicable manufacturer warranties along to the City. Specific requirements for light fixtures are further described in Section 9.4.

N. In systems with existing lights on both sides of the street, the circuitry shall be configured so that the lights on one side of the street can be "de-energized" without affecting the operation of the lights on the opposite side of the street. A maximum of 72 hours (3 days) of outage is permissible for existing street lighting. Where work would result in an outage for all existing lights, temporary lighting in a manner acceptable to the City shall be provided. Temporary lighting of up to 1 month (30 days) is allowed, and the Engineer of Record or City Project Manager shall strive to complete all street lighting work and energize lights within that timeframe.

O. A minimum of 2-inch conduit shall run between junction boxes. Between each light pole and the adjacent junction box, there must be 1 conduit that is 2 inches in size. All conduit runs shall be marked with an underground marking tape per 00960.42(e) of the Oregon Standard Specifications for Construction. All conduits shall be Schedule 40 PVC, and all elbows shall be fiberglass. The Engineer of Record or City Project Manager must install bushings on all conduit ends and seal the ends with an approved conduit plug. See City Standard Drawings for additional details.

P. The Engineer of Record or City Project Manager is responsible for locating street light poles so that no portion of the pole, mast arm, or luminaire is within 10 feet of an energized line. Installation shall conform to OAR 437-002-0047 and 437-002-2316.

Q. Table 9-2 provides lighting levels for streets and parallel on-street bicycle facilities.

R. Table 9-3 provides intersection lighting standards. Table 9-4 provides unsignalized pedestrian/bicycle crossing target lighting values.

Table 9-2: Lighting Levels for Street and Parallel On-Street Bicycle Facilities (ANSI/IES RP-8)

Average Maintained Illuminance on the Horizontal				
Roadway Classification	Pedestrian Conflict Area	Minimum Average Maintained in Foot Candles [1]		
		Concrete Street	Asphalt Street	Uniformity Ratio Avg. to Min.
Arterial	High	> 1.2	> 1.7	< 3:1
	Medium	> 0.9	> 1.3	< 3:1
	Low	> 0.6	> 0.9	< 3:1
Collector	High	> 0.8	> 1.2	< 4:1
	Medium	> 0.6	> 0.9	< 4:1
	Low	> 0.4	> 0.6	< 4:1
Local Road	High	> 0.6	> 0.9	< 6:1
	Medium	> 0.5	> 0.7	< 6:1
	Low	> 0.3	> 0.4	< 6:1

[1] Do not design roadways more than 1.3x above the minimum average foot-candlelight levels.

Table 9-3: Intersection Lighting Standards (ANSI/IES RP-8)

Average Maintained Illuminance on the Horizontal				
Intersection Classification	Pedestrian Conflict Area	Minimum Average Maintained in Foot Candles [1 2]		
		Concrete Intersection	Asphalt Intersection	Uniformity Ratio Avg. to Min.
Arterial/Arterial	High	> 2.4	> 3.4	< 3:1
	Medium	> 1.8	> 2.6	< 3:1
	Low	> 1.2	> 1.8	< 3:1
Arterial/Collector	High	> 2.0	> 2.9	< 3:1
	Medium	> 1.5	> 2.2	< 3:1
	Low	> 1.0	> 1.5	< 3:1
Arterial/Local Road	High	> 1.8	> 2.6	< 3:1
	Medium	> 1.4	> 2.0	< 3:1
	Low	> 0.9	> 1.3	< 3:1
Collector/Collector	High	> 1.6	> 2.4	< 4:1
	Medium	> 1.2	> 1.8	< 4:1
	Low	> 0.8	> 1.2	< 4:1
Collector/Local Road	High	> 1.4	> 2.1	< 4:1
	Medium	> 1.1	> 1.6	< 4:1
	Low	> 0.7	> 1.0	< 4:1
Local Road/Local Road	High	> 1.2	> 1.8	< 6:1
	Medium	> 1.0	> 1.4	< 6:1
	Low	> 0.6	> 0.8	< 6:1

[1] Do not design intersections more than 1.3x above the minimum average foot-candlelight levels.
[2] Intersection analysis area includes curb ramp landings and crosswalks.

Table 9-4: Unsignalized Pedestrian/Bicycle Crossing Target Lighting Values (ANSI/IES RP-8)[6]

Average Maintained Illuminance on the Horizontal and Vertical [5]			
Maintained Illuminance Values for Walkways in Foot Candles High Pedestrian Conflict Areas [4]			
Location	**Eavg [1]**	**EVmin [2]**	**Uniformity Ratio [3]**
Mixed Vehicle and Pedestrian	> 2.0	> 1.0	< 4:1
Pedestrian Only	> 1.0	> 0.5	< 4:1
Maintained Illuminance Values for Walkways in Foot Candles Medium Pedestrian Conflict Areas [4]			
Location	**Eavg [1]**	**EVmin [2]**	**Uniformity Ratio [3]**
Pedestrian Areas	> 0.5	> 0.2	< 4:1
Maintained Illuminance Values for Walkways in Foot Candles Low Pedestrian Conflict Areas [4]			
Location	**Eavg [1]**	**EVmin [2]**	**Uniformity Ratio [3]**
Rural/Semi-Rural Areas	> 0.2	> 0.06	< 10:1
Low Density Residential (< 2 dwelling units per acre)	> 0.3	> 0.08	< 6:1
Medium Density Residential (2.1–6.0 dwelling units per acre)	> 0.4	> 0.1	< 4:1

[1] Eavg—Minimum maintained average horizontal illuminance at the pavement surface.

[2] EVmin—Minimum vertical illuminance at 5 feet above the pavement.

[3] Ratio of Eavg to the minimum horizontal illuminance at the pavement surface.

[4] Refer to ANSI/IES RP-8 for additional guidance regarding these tables.

[5] Vertical illuminance is measured at a height of 5 feet in both directions and parallel to the main pedestrian flow.

[6] Target values for midblock and RRFB enhanced crossings.

9.4 LIGHT FIXTURES

PGE light fixtures are the standard, which includes different types.

- The *decorative acorn light fixture* includes two City standards and one PGE standard.
- The *tear drop light fixture* includes one City standard.

Designs should include the same type of fixture on both sides of the street.

Table 9-5 provides a summary of the light fixtures that shall be used on various streets throughout the City. Table 9-6 provides example photos for each type of light fixture presented in Table 9-5.

Table 9-5: Types of Light Fixtures By Street

Location	Tear Drop Style	King Acorn Style	Lumecon Acorn Style	Town & Country Style
Downtown District			X	
Washington Street: 7th Street to Metro/Home Depot			X	
Washington Street: Prairie Schooner Way to Metro/Home Depot	X			
Molalla Avenue: Hwy 213 to Beavercreek Road		X		
Molalla Avenue: Beavercreek Road to Holmes Street/Hilda Street		X		
Molalla Avenue: Holmes Street/Hilda Street to Division Street			X	
7th Street: High Street to Division Street	X			
Holcomb Boulevard: Front Avenue to Winston Drive				X

Table 9-6: Examples of Light Fixtures

Tear Drop Style	King Acorn Style	Lumecon Acorn Style	Town & Country Style

9.5 STREET LIGHT EQUIPMENT & PLACEMENT

Any work performed under permits issued by Oregon City Public Works shall be in accordance with the Oregon Standard Specifications for Construction as prepared by ODOT and the Oregon Chapter of American Public Works Association (APWA) and as modified and adopted by the City. Additional guidance for street light equipment and placement is described below.

A. Option A: PGE street lighting equipment must be included in the most current PGE-approved street lighting equipment list.

B. Option C: Street lighting equipment shall be as shown according to Std. Dwg. OC536.

    1. Street lighting along Molalla Avenue shall only be Option C and as shown according to Std. Dwg. OC536.

C. Light poles and junction boxes shall be located per Std. Dwg. OC536.

D. The Engineer of Record or City Project Manager is responsible for locating street light poles so that no portion of the pole, mast arm, or luminaire is within 10 feet of an energized line. Installation shall conform to OAR 437-002-0047 and 437-002-2316.

E. Street lighting conduit shall be placed under the sidewalk where feasible.

F. If the approved equipment is no longer available, the Engineer of Record or City Project Manager should coordinate with the City Engineer to obtain approval of the currently available alternative street lighting system.

G. Solar-powered equipment is not allowed within the City unless approved by the City Engineer.

9.5.1 Junction Boxes

Standards below apply to Option A and Option C.

A. Junction boxes shall be no more than 3 feet from each pole served, and there shall be 1 junction box for each street light pole. The Engineer of Record or City Project Manager must install 1 junction box for each lighting controller and include one spare 2-inch conduit installed to the controller with a pull string. See Std. Dwgs. OC536-OC536A.

B. All junction boxes and lids shall be open bottom polymer concrete or polymer fiberglass with a skid-resistant cover marked “Street Lighting.”

C. The Engineer of Record or City Project Manager must not install junction boxes in sidewalk ramps or ramp wings. Junction boxes shall be placed in the following locations in order of preference or as approved by the City:

    1. Landscape strip
    2. Back of sidewalk with a concrete apron (within the public utility easement)
    3. Sidewalk (outside of primary walking route; i.e., furniture zone); see Std. Dwg. OC536A

9.5.2 Cable and Wire

Option A wiring shall conform to PGE standards. The following is for Option C only.

A. A single-phase, 3 wire, 240-volt, dedicated metered service shall be provided for street lighting.

B. All wires shall be stranded copper, single conductor, type XHHW, with 600-volt insulation (unless no insulation is provided as noted below). Solid wiring is not permitted. The minimum wire size for the lighting circuit is #10 AWG wire, and the maximum wire size is #1 AWG wire. All wire splices shall occur inside the junction boxes.

C. Street lighting circuits shall be designed to ensure that no section of roadway shall end up completely unlit with the loss of a single circuit. The following circuit configurations apply:

    1. When lighting is provided on both sides of the street, each side of the street shall be on a different circuit.

D. Wire insulation color shall conform to the following:

    1. 120-volt photoelectric circuit wires: A black wire from the controller to the photocell or a red wire for the return to the cabinet shall be used.

    2. 240-volt line distribution wires: Install circuit wire pairs as shown below, with each pair of wires sharing the same insulation color. If additional circuits are required, insulation color shall be approved by the City.

        a. 1st circuit pair—black

        b. 2nd circuit pair—red

        c. 3rd circuit pair—blue

        d. 4th circuit pair—brown

        e. 5th circuit pair—yellow

        f. 6th circuit pair—orange

    3. Grounded (neutral) conductors, if needed, shall be white or natural gray.

    4. Grounding electrode conductors from the light pole to the adjacent junction box shall be green insulated or bare stranded wire.

    5. Equipment ground conductors in the conduit raceways shall be green insulated.

E. Color coding of each conductor shall remain consistent throughout the entire system. Factory supplied striping of conductors will be accepted when the required color insulation is not available. Color tape will not be accepted as an alternate for insulation color coding.

9.5.3 Poles and Foundations

A. All poles shall be grounded. The Engineer of Record or City Project Manager must install a ground rod in the junction box located at each pole. This includes a 1-inch schedule 40 PVC conduit with a #6 green insulated or bare wire from the pole to the ground rod located in each junction box. (See *Oregon Standard Drawings*.)

B. All light poles shall be constructed with a nominal 2-½-inch x 5-inch hand hole placed approximately 2-4 feet above the ground line. In plan view, the handhole shall be at 90 degrees from the mast arm or curbside of the pole. The hand hole must be secured with cast aluminum or galvanized steel cover painted to match the pole and held in place with a stainless-steel, tamper-resistant set screw.

C. All poles should include flower basket irrigation.

D. Breakaway designs shall be used for light poles located along roadways with posted speeds greater than 35 mph and within the clear zone as defined by Table 3-1 of the AASHTO *Roadside Design Guide*, except for those located in drainage ditches, near bus shelters, or in areas with extensive pedestrian concentrations.

E. An inline fuse shall be installed between the circuit and each light fixture depending on whether it is metered or falls under PGE's Option C standard.

F. Poles shall be located a minimum of 15 feet from street trees as shown on Std. Dwg. OC536A.

G. Poles shall be located a minimum of 5 feet from driveway wings, fire hydrants, and other utilities.

9.5.4 Lighting Controller

A. The controller cabinets shall be installed away from intersections and locations where an errant vehicle could damage the cabinet. The cabinet location should be near a side property line and should not detract aesthetically from the adjacent properties. In residential areas, locating cabinets within side yard frontages is preferred to locating them in front yard frontages. Cabinet locations should also consider future system growth. The Engineer of Record or City Project Manager should consult with the City Engineer and PGE regarding cabinet location at the beginning of design.

B. The cabinet shall have a service panel that has a "Service Equipment" rated UL label attached to the panel. A 100-amp, single-phase, 3-wire, 240-volt, dedicated metered service is to be provided by the developer. Each street lighting circuit shall be wired 240 volts. The street light base-mounted controller shall be installed per ODOT's Std. Dwg. TM485 and shall be on *Clackamas County Roadway Standards* and details. The controller shall be made of stainless steel and include circuit breakers, a test switch, and neutral and ground bars. When only one illumination breaker is being installed, there shall be space for three additional illumination breakers. Designers shall follow NFPA 70E standards for arc flash, provide the required labeling for the controller cabinet, and attach available fault current to the inside of the door with a permanent label.

C. The cabinet shall be stainless steel.

D. A single, 3-inch spare conduit shall be installed from the controller cabinet to the nearest junction box with tracer wire and pull line.

E. When designing or installing Option C, a single photocell shall be provided at the BMCL. Photocell model shall be from ODOT Qualified Product List or PGE Approved Equipment List.

10.0 LANDSCAPE DESIGN

Chapter 10 provides information on landscape design for City streets and intersections. Additional design standards are provided OCMC 12.08. For roundabout landscape design considerations, refer to *NCHRP Report 672: Roundabouts, An Informational Guide.*

10.1 PLANT TYPES

A. Trees

1. Tree species type selections should comply with Section 10.2 Street Trees below.

B. Shrubs and Groundcovers

1. Shrub and groundcover species type selections should be drought-tolerant, suitable to the available space, and adapted to street-side environments. Shrubs and groundcover plants are to be selected from the Oregon City Native Plant List unless the City Engineer approves otherwise.

C. Plants found on the Oregon City Nuisance Plant List or other invasive species should never be used.

10.2 STREET TREES

A. Street tree species selection must be in accordance with OCMC 12.08.015—Street Tree Selection, Planting, and Maintenance Requirements. Section 3.5 provides additional information on sight distance considerations for tree planting and maintenance.

B. Types

1. The City will approve street tree species based on specific site conditions. Street tree species are to be selected from the Oregon City Street Tree List. Alternative species may be acceptable with prior City Engineer approval.

C. Clearance Distances

The following distances shall be maintained between trees and street elements, as measured from the center point of the tree:

1. 5 feet from driveways as measured from edge of driveway apron.
2. 5 feet from any regulatory signs.
3. 15 feet from street lights.
4. 5 feet from fire hydrants.
5. 20 feet from intersections as measured from the right-of-way boundary of the intersecting street.
6. 5 feet from all public utilities (e.g., sewer, storm, and water lines, utility meters, etc.).

D. Planting Requirements

1. Refer to OCMC 12.08.015—Street Tree Selection, Planting, and Maintenance Requirements.
2. Plant street trees according to Std. Dwg. OC530, Street Tree Planting in Planter Strip.

E. Distance to Street Light Poles

1. Trees shall be located a minimum of 15 feet from street light poles, as shown on Std. Dwg. OC536A.

F. Irrigation

1. Irrigate new street trees by permanent or temporary means if required by the City Engineer. The City Engineer must approve all irrigation requirements and design/construction methods.
2. In urban conditions, especially when planting in pavement (including median islands and sidewalk cutouts), a permanent irrigation system may be necessary to sustain living plants. The City Engineer must review and approve selection.
3. Implement wise water-use techniques that include water distribution devices that apply water with no runoff or overspray onto pavement or buildings. Incorporate 'smart' controllers and sensors to synchronize water application with changing weather conditions.
4. A qualified designer should prepare irrigation plans and specifications.
5. Irrigation systems using an automatic controller shall have the ability to reduce water application over time to promote plant independence and sustainability.

G. Street trees and their limbs and foliage must comply with OCMC 10.32.030—Sight Line Requirements. Other maintenance requirements related to landscape trimming are included in OCMC 12.08.025.

10.3 MEDIAN DESIGNS

A. Style

1. Street medians should be landscaped with City Engineer approval. Rocked medians should be used for medians near pedestrian crossings and when required for sight distance.
2. Street medians 4 feet wide or less (measured from back-of-curb to back-of-curb) must be designed with hardscape elements including but not limited to rocked areas, textured concrete, or modular unit pavers. This should not include trees, shrubs, or groundcover. Bark mulch may be used in street medians 4 feet wide or less, except for anywhere within a left-turn lane pocket taper.
3. Street medians wider than 4 feet (measured from back-of-curb to back-of-curb) must be planted with trees, shrubs, and groundcovers, including bark mulch, unless otherwise approved by the City Engineer. Median planting design must be in accordance with OCMC 12.08.015. Street medians wider than 4 feet may be designed without plants if unique site conditions warrant it. Median design without plant materials will require the City Engineer's approval.

B. Location

1. Locate street median designs in accordance with OCMC 16.12.016—Street Design. Street trees in planted medians must be spaced 35 feet on-center, and shrubs and/or groundcovers must be spaced 4 feet on-center.
2. Median plant materials must have size and shape characteristics that are appropriate for the available spaces.
3. Street trees shall not be planted closer than 15 feet from street light poles.

C. Pedestrian Refuge Islands

1. For pedestrian and motorist safety, trees, shrubs, and groundcover plants are not recommended in pedestrian refuge islands. Rocked medians should be used instead.

10.4 PLANTING STRIP DESIGNS

Planted landscape strip design shall be in accordance with OCMC 16.12.016.F. Street tree species shall be selected from the Oregon City Street Tree List. Alternative species may be accepted by the City Engineer.

10.5 FURNITURE ZONE

The future zone includes the area from the edge of curb to the right-of-way and may consist of landscaping and other objects associated with adjacent land uses.

A. Planting may be permissible, with City approval, in street section furniture zones.

B. Planting within furniture zones likely means plants in open tree wells, sidewalk cutouts, or tree grates. When planting in paved areas, if approved by the City, consider using structural soils (CU-Structural Soil™) beneath the adjacent pavement to promote healthy root spread and root access to subsurface air and water.

C. For pedestrian and motorist safety, trees, shrubs, and groundcover plants must not restrict access to or compete aesthetically with other amenities located in the furniture zone.

D. Beyond landscape features, items in the furniture zone may include hydrants, benches, trash containers, decorative tree lights, and electric outlets.

E. All items in the furniture zone need to be evaluated together to maintain appropriate access to parking and other land uses.

F. Items in the furniture zone must not impact ADA accessibility.

10.6 GREEN STREETS AND STORMWATER TREATMENT

Landscaping of stormwater treatment facilities must comply with the Oregon City Stormwater and Grading Design Standards. Metro’s Designing Livable Streets and Trails Guide provides additional reference information for green streets.

The City encourages projects to incorporate green infrastructure treatments, such as vegetated medians, roadside swales, rain gardens and infiltration planters, permeable pavements, bioretention curb extensions, and street trees. These treatments allow streets to not only manage stormwater but to mitigate the harmful impacts of transportation systems on air, water, noise, and habitat function and connectivity. The goals of green streets are generally to provide stormwater source control, confine stormwater transport and pollutant conveyance to a collection system, restore pre-development hydrology to the extents possible, and provide environmentally enhanced roads. The successful application of green street techniques will promote soil and vegetation contact and onsite infiltration and retention of stormwater.

Examples of green street infrastructure include:

A. **Street trees** support stormwater management, offer wildlife habitat, improve air quality, reduce heat island effects by providing shade, improve roadway aesthetics, promote human well-being through enhanced levels of interaction and carbon sequestration, and calm traffic. On streets with high levels of walking and bicycling, street trees provide buffers from traffic and air pollution.

B. **Planters** are structured facilities with hard walls, generally flat bottoms, growing media, topsoil, and vegetation. They can be designed to promote infiltration directly into the native ground below or designed to be impermeable with liners when infiltration is either not desired or not feasible. When designed for impermeability, planters must be plumbed to a stormwater collection system. Planters are often used as one of a series of facilities within a streetscape to meet stormwater requirements.

C. **Curb extensions with landscaping** have hard edges, generally flat bottoms, soil, vegetation, and the option of permeability or impermeability. Landscape extensions can also be combined with adjacent planters to further reduce runoff volumes, attenuate peak flows, and maximize resident stormwater storage capacity before discharging into a collection system.

D. **Basins** (or rain gardens) are facilities that are depressed relative to the street and sidewalk elevations, and they may have hard edges or bermed side slopes, flat bottoms, topsoil and/or growing media, and vegetation. Basins are generally used when and where modeled infiltration rates into the site are acceptable and are not harmful to either the roadway pavement or base. They are typically used as a single facility to handle larger volumes of water within a catchment area.

E. **Swales** are depressed landscape strips with sloped earthen sides. Swales take up more room within the right-of-way than planters because swales lack a hard edge and require side slopes to match adjacent street and sidewalk grades. Swales also convey water parallel to the roadway along their sloped surfaces, which can reduce subsurface collection system pipe needs.

F. **Permeable Pavement** comes in four forms: permeable concrete, permeable asphalt, permeable interlocking concrete pavers, and grid pavers. Permeable concrete and asphalt are similar to their impermeable counterparts but are open graded. Concrete and grid pavers are modular systems installed with gaps between paver units to allow stormwater to infiltrate through to the aggregate base. Grid pavers are typically a durable plastic matrix that can be filled with gavel or vegetation. Grid pavers are commonly designed to accommodate emergency vehicle or fire truck access on private properties. ADA compliance must be verified in applicable areas.

11.0 REFERENCES

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APPENDIX A

ADDITIONAL RESOURCES

APPENDIX A—ADDITIONAL RESOURCES

The *Standards* strive for consistency with the most recent versions of the City Relevant Resources described in Section 1.2.

If the *Standards* do not address a specific design issue, the most recent version of the following documents should be referenced. In all situations, engineering shall determine the appropriate design reference and its applicability.

American Association of State Highway and Transportation Officials (AASHTO), *A Guide for Achieving Flexibility in Highway Design*

AASHTO, Guide for the Development of Bicycle Facilities

AASHTO, Guide for the Planning, Design, and Operation of Pedestrian Facilities

AASHTO, Guidelines for Geometric Design of Very Low-Volume Local Roads

AASHTO, LRFD Bridge Design Specifications

AASHTO, A Policy on Geometric Design of Highways and Streets

AASHTO, Roadside Design Guide

AASHTO - Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals

American Society for Testing and Materials (ASTM)

The Asphalt Institute, *The Asphalt Handbook*

The Asphalt Institute, Thickness Design - Highways and Streets

Federal Highway Administration (FHWA), Manual on Uniform Traffic Control Devices (MUTCD)

FHWA, Standard Highway Signs

FHWA, Roundabouts: An Informational Guide

Institute of Transportation Engineers (ITE), Traffic Control Devices Handbook

ITE, Traffic Engineering Handbook

ITE, Trip Generation Manual

ITE, Trip Generation Handbook

International Building Code (IBC)

International Plumbing Code (IPC)

National Association of City Transportation Officials (NACTO), *Urban Bikeway Design Guide*

NACTO, *Urban Street Design Guide*

ODOT, Highway Design Manual

ODOT, Hydraulics Design Manual

ODOT, Oregon Temporary Traffic Control Handbook for Operations of Three Days or Less

ODOT, Traffic Control Plans Design Manual

ODOT, Traffic Line Manual

ODOT, Traffic Manual

ODOT, Traffic Signal Policy and Guidelines

ODOT, Sign Policy and Guidelines

ODOT, Oregon Standard Drawings

ODOT and American Public Works Association (APWA), *Standard Specifications for Construction*

Oregon Fire Code, Appendices B and D

Oregon Fire Code Metro Code Committee *Fire Code Applications Guide*

Oregon Supplement to the MUTCD

Other local fire codes

Transportation Research Board (TRB), *Highway Capacity Manual*

TriMet Bus Stops Guidelines

APPENDIX B

FORMS

B1. DESIGN MODIFICATION FORM

City of Oregon City

Design Modification Request

For Capital Improvement Program Projects

Per Oregon City Street Standards Section 2.1

City Use Only

Reference #:

Request submitted by (name, title, contact email and phone number):

Engineer of Record (License number):

Date:

PROJECT INFORMATION

Project name:

Nearest address or intersection:

City map and tax lot number(s):

Functional classification of road:

Posted speed:

DESIGN MODIFICATION

Applicable roadway standard:

Description of modification and reason for request:

Supporting documentation *(photos showing features requiring exception, plan sheets, other items that support the need for the exception)*:

Mitigation for modification:

Public benefit:

City of Oregon City

Design Modification Request - *continued*

Submitted By

Name:

Signature:

Date:

Space provided for Engineer of Record stamp.

City Use Only

Approved by the City Engineer or their designee:

Name and Title:

Signature:

Date:

B2. PUBLIC IMPROVEMENT MODIFICATION APPLICATION

OREGON CITY

Public Works – Development Services

625 Center St | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

DEVELOPMENT SERVICES
TYPE I PUBLIC IMPROVEMENT MODIFICATION APPLICATION

Application Date:

Project Name:	
Proposed Land Use or Activity:	
Physical Address(es) of Site:	
Clackamas County Map and Tax Lot Number(s):	

Applicant(s)

Applicant(s) Signature:		
Applicant(s) Name Printed:		Date:
Mailing Address:		
Phone:	Fax:	Email:

Property Owner(s)

Property Owner		
Property Owner Signature		
Property Owner Name Printed:		Date:
Mailing Address:		
Ownership Address:		
Phone:	Fax:	Email:

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties' willingness to comply with all code requirements.

Please respond to Oregon City Municipal Code (OCMC) Section 16.12.13.A below. Note that, to be processed as Type I per 16.12.013.B., Public Improvement Modifications reviewed by Development Services must regard a modification to driveway location, size, and sharing standards in 16.12.035. Resources available from the City include OCWebMaps, OCMC Chapter 16.12, Public Works standards, and Public Works Master Plans. Please attach additional pages as needed.

16.12.13 - Modifications.

The applicant may request and the review body may consider modification of the standards in this chapter resulting from constitutional limitations restricting the City's ability to require the dedication of property or for any other reason, based upon the criteria listed below and other criteria identified in the standard to be modified. All modifications, except for adjustments approved by the City Engineer for tree preservation purposes pursuant to 16.12.013.B, shall be processed through a Type II Land Use application and may require additional evidence from a transportation engineer or others to verify compliance.

A. Compliance with the following criteria is required:

1. The modification meets the intent of the standard;

2. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;

OREGON CITY
Public Works – Development Services
625 Center St | Oregon City OR 97045
Ph (503) 657-0891 | Fax (503) 657-7892

3. The modification is consistent with an adopted transportation or utility plan; and

4. The modification is complementary with a surrounding street design; or, in the alternative;

5. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The City shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

City Use Only:

Approved by the City Engineer or their designee:

_____
Name and Title

_____ _____
Signature Date

B3. ADA MODIFICATION FORM

City Use Only	Item 7a.
Reference #:	

City of Oregon City

Americans with Disabilities (ADA) Modification Request

Per Oregon City Street Standards Section 2.1

Request submitted by (name, title, contact email and phone number):

Engineer of Record (License number):

Date:

PROJECT INFORMATION

Project name:

Nearest address or intersection:

City map and tax lot number(s):

Functional classification of road:

Posted speed:

DESIGN MODIFICATION

Type of accessibility feature:

- ☐ curb ramp
- ☐ pedestrian signal push button clear space
- ☐ pedestrian signal push button

New or Alteration:

- ☐ New accessibility feature (there was no accessibility feature at the location prior to the project)
- ☐ Alteration of an existing accessibility feature (there was an accessibility feature at the location of the project)

Description of modification and reason for request *(PROWAG 202.3.1: Where existing physical constraints make it impractical for altered elements, spaces, or facilities to fully comply with the requirements for new construction, compliance is required to the extent practical within the scope of the project. Existing physical constraints include, but are not limited to, underlying terrain, right-of-way availability, underground structures, adjacent developed facilities, drainage, or the presence of a notable natural or historic feature)*:

City of Oregon City

Americans with Disabilities (ADA) Modification Request - *continued*

Mitigation for modification *(How does the design strategy accomplish accessibility to the maximum extent practical?):*

Supporting documentation *(photos showing features requiring exception, plan sheets, other items that support the need for the exception)*:

Submitted By

Name:

Signature:

Date:

Space provided for Engineer of Record stamp.

City Use Only

Approved by the City Engineer or their designee:

Name and Title:

Signature:

Date:

B4. WORK ZONE SPEED REDUCTION REQUEST FORM

City of Oregon City

Temporary Speed Reduction Request

City Use Only

Reference #:

Request submitted by (name, title, contact email and phone number):

Engineer of Record (License number):

Date:

PROJECT INFORMATION

Project name:

Project Start Date:

Street Name: | Start and End Mile Post:

City map and tax lot number(s):

EXISTING STREET INFORMATION

Functional classification of road:

Posted speed:

Annual Average Daily Traffic (AADT):

Additional notes on street features (e.g., limited sight distance due to horizontal/vertical alignments, etc.):

DESCRIPTION OF NEED

Describe in detail the scope or work, and condition or operations that would merit a construction speed reduction. Identify portion(s) of the traffic control plan that would benefit from a speed reduction.

City of Oregon City

Temporary Speed Reduction Request - *continued*

REQUESTED SPEED REDUCTION

Describe the speed reduction requested for each condition or operation and provide the location of the request, including beginning and ending mileposts.

TIMING

Describe when the condition or operation will be in place using the stage/phase, specific activity, project milestone, or time of day.

FACTORS

Select the work type and factor(s) for the construction speed zone reduction and provide explanation.

General Conditions:

- ☐ Temporary horizontal curve is designed and includes an advisory speed >10 mph below pre-construction posted speed.
- ☐ Reduced safe speed for stopping sight distance.
- ☐ Condition conflicts wit normal driver expectancy.

Shoulder Activity:

- ☐ Uninterrupted traffic flow with workers present for extended periods, with 10 feet of the traveled way, unprotected by barrier.

Lane Encroachments, Centerline Encroachments, or Lane Closures:

- ☐ Uninterrupted traffic flow with workers present for extended periods, with 10 feet of the traveled way, unprotected by barrier.
- ☐ Barrier within 2 feet of the traveled way.
- ☐ Pavement edge drop-off (>2 inches) within 2 feet of the traveled way.
- ☐ Lane width reduction resulting in a lane width of ≤ 10 feet.

Temporary On-Site Diversion:

- ☐ Temporary on-site diversion lane width ≤ 11 feet.
- ☐ Advisory speed for temporary on-site diversion's horizontal curvature >10 mph below the pre-construction posted speed.

City of Oregon City

Temporary Speed Reduction Request - *continued*

Submitted By

Name:

Signature:

Date:

Space provided for Engineer of Record stamp.

City Use Only

Approved by the City Engineer or their designee:

Name and Title:

Signature:

Date:

APPENDIX C

CITY WEBSITES AND CHECKLISTS

APPENDIX C—CITY WEBSITES AND CHECKLISTS

Websites and checklists associated with the *Standards* are provided below with associated sections in the *Standards.*

Section 2.2: Permitting/Approval Process

City Permits and Associated Checklist Information
https://www.orcity.org/publicworks/engineering-permits

Development Services Permit Checklists
https://www.orcity.org/publicworks/engineering-development-services-checklists

Performance Bonds, Cost Estimates and Agreement Forms
https://www.orcity.org/publicworks/required-documents.

Engineering Fees
https://www.orcity.org/publicworks/engineering-fees

Section 2.3 Construction Inspection

Private Development Minimum Inspection Requirements
https://www.orcity.org/sites/default/files/fileattachments/public_works/page/12662/minimum_inspection_requirements_checklist_11-2020_fillable.pdf

Section 3.4 Intersections

ADA Design Review Checklist—Medians/Traffic Islands
https://dochub.clackamas.us/documents/drupal/6d27b366-4418-4dda-b3b9-d8bfc22161d1

Section 4.1 Pedestrian Design

Clackamas County ADA Design Review Checklist—Sidewalk/Multiuse Path
https://dochub.clackamas.us/documents/drupal/b4efebc9-754d-4506-89bd-6b09660384dc

Clackamas County ADA Assessment Checklist—Curb Ramps
https://dochub.clackamas.us/documents/drupal/18d3d081-2838-4186-8010-e5c690778f1f

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: Public Works Director John M. Lewis, PE

SUBJECT:

Amendment No. 2 to the Personal Services Agreement Landscape Maintenance Services – Street Division (PS 20-013) with DeSantis Landscape. Inc.

STAFF RECOMMENDATION:

Authorize the City Manager to execute Amendment No. 2, extending Personal Services Agreement – Landscape Maintenance Services – Street Division (PS 20-013) with DeSantis Landscape, Inc. for one (1) additional year.

EXECUTIVE SUMMARY:

The original landscape contract ended on April 30, 2022, with an option to renew for an additional three (3) one (1) year terms. The City's first landscape amended contract for the Street Division is reaching its end on April 30, 2023. The City would like to utilize the option to renew for one (1) additional year. A 5.96% increase has been applied to the yearly contract amount to account for the Consumer Price Index (CPI-U) adjustment and shall not exceed $74,949.53 for one (1) additional year. The total contract price shall not exceed $277,551.12.

BACKGROUND:

Oregon City is responsible for a variety of ongoing landscape maintenance including approximately 132 sites and 42 acres of rights-of-way, street medians, facilities, water pump stations, and reservoirs. The City's ongoing landscape maintenance projects are categorized into these five types of properties:

- Stormwater Division Properties
- Street Division Properties
- Urban Renewal Properties
- Water Division Properties
- Sanitary Division Properties

Historically, the City has managed its landscaping needs using contractors, community services crews, and in-house crews.

This contract amendment is specifically for the maintenance areas/projects assigned to the Street Division as the Public Works Department solicits for the various categories of work separately and each category is performed under a separate contract.

The City would like to utilize the option to renew this contract for Street Division landscape maintenance for one (1) additional year. An increase of 5.96% has been applied to the yearly contract amount to account for the Consumer Price Index (CPI-U) adjustment and shall not exceed $74,949.53 for one (1) additional year. The total contract price shall not exceed $277,551.12.

OPTIONS:

1. Authorize the City Manager to execute the Amendment.
2. Authorize the City Manager to execute the Amendment with specific modifications.
3. Deny the amendment. If the Commission chooses to deny the Amendment, staff requests direction on how to proceed.

BUDGET IMPACT:

Amount:	$74,949.53
FY(s):	2022/2023 $12,491.58
	2023/2024 $62,457.95
Funding Source(s):	Transportation Fund

Point of Contact: Jayson Thornberg
Term of Contract: May 1, 2023 – April 30, 2024

CITY OF OREGON CITY
Amendment No. 2 to Personal Services Agreement

LANDSCAPE MAINTENANCE SERVICES – STREET DIVISION (PS 20-013)

This is an Amendment to the Personal Services Agreement by and between the City of Oregon City (hereinafter City), and **DESANTIS LANDSCAPE, INC.** hereinafter called "PS Contractor," which was previously entered into on **May 1, 2020** ("Contract") for **LANDSCAPE MAINTENANCE SERVICES – STREET DIVISION** and
Whereas, the parties wish to amend the Contract as set forth below:

WITNESSETH:

1. The **Scope of Work** is hereby amended as follows:

   No change to the scope of work

2. The **Duration of Contract** is hereby amended as follows:

   Extend the contract for one (1) additional year.

3. The **Payment Provisions** are hereby amended as follows:

   For provision of revision of fee schedule described above, the contract price shall be increased by an amount not to exceed **seventy-four thousand, nine hundred forty-nine dollars and fifty-three cents ($74,949.53).** A 5.96% increase has been applied to the yearly contract amount to account for the Consumer Price Index (CPI-U) adjustment. The total amount of this contract shall be in the amount not exceed **two-hundred seventy-seven thousand, five hundred and fifty-one dollars and twelve cents ($277,551.12).**

All other provisions of the Personal Services Agreement referenced above shall remain in full force and effect.

DESANTIS LANDSCAPE, INC	**CITY OF OREGON CITY**
By:_____	_____
Name: _____	Anthony J. Konkol, III
Title: _____	City Manager
Date: _____	_____
	John M. Lewis, P.E. Public Works Director
Date Authorized by Commission, if applicable: April 19, 2023	Date: _____

CITY OF OREGON CITY
PERSONAL SERVICES AGREEMENT

LANDSCAPE MAINTENANCE SERVICES – STREET DIVISION (PS 20-013)

This PERSONAL SERVICES AGREEMENT ("Agreement") is entered into between the CITY OF OREGON CITY ("City") and **DESANTIS LANDSCAPE, INC.** ("Contractor").

RECITALS

A. City requires services that Contractor is capable of providing under the terms and conditions hereinafter described.

B. Contractor is able and prepared to provide such services as City requires under the terms and conditions hereinafter described.

The parties agree as follows:

AGREEMENT

1. Term. The term of this Agreement shall be from the date the contract is fully executed until **April 30, 2022, with an option to renew for an additional three (3) one (1) year terms,** unless sooner terminated pursuant to provisions set forth below. However, such expiration shall not extinguish or prejudice City's right to enforce this Agreement with respect to (i) breach of any warranty; or (ii) any default or defect in Contractor's performance that has not been cured.

2. Compensation. City agrees to pay Contractor on a time-and-materials basis for the services required. Total compensation, including reimbursement for expenses incurred, shall not exceed **one hundred thirty-one thousand, eight hundred sixty-seven and 74/100 dollars ($131,867.74).**

3. Scope of Services. Contractor's services under this Agreement shall consist of services as detailed in Exhibit A, attached hereto and by this reference incorporated herein.

4. Standard Conditions. This Agreement shall include all of the standard conditions as detailed in Exhibit B, attached hereto and by this reference incorporated herein.

5. Schedule. The components of the project described in the Scope of Services shall be completed according to Term, above.

6. Integration. This Agreement, along with the description of services to be performed attached as Exhibit A and the Standard Conditions to Oregon City Personal Services Agreement attached as Exhibit B, contain the entire agreement between and among the parties, integrate all the terms and conditions mentioned herein or incidental hereto, and supersede all prior written or oral discussions or agreements between the parties or their predecessors-in-interest with respect to all or any part of the subject matter hereof.

7. Notices. Any notices, bills, invoices, reports or other documents required by this Agreement shall be sent by the parties by United States mail, by hand delivery or by electronic means. All notices shall be in writing and shall be effective when delivered. If mailed, notices shall be deemed effective forty-eight (48) hours after mailing, unless sooner received.

To the City:

City of Oregon City
PO Box 3040
625 Center Street
Oregon City, OR 97045
Attention: John M. Lewis

To Contractor:

DeSantis Landscape, Inc.
7907 State Street
Salem, OR 97317
Attention: Dean DeSantis

Contractor shall be responsible for providing the City with a current address. Either party may change the address set forth in this Agreement by providing notice to the other party in the manner set forth above.

8. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the state of Oregon without resort to any jurisdiction's conflicts of law, rules or doctrines.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly appointed officers on this 22 day of June, 20 20.

CITY OF OREGON CITY

By: Anthony J. Konkol III
Title: City Manager
DATED: 5-20, 2020.

By: John M. Lewis, P.E.
Title: Public Works Director
DATED: 5-19-2020, 20__.

DESANTIS LANDSCAPE, INC.

By: Dean DeSantis
Title: President
DATED: 6/22, 2020

P:\PublicWorks\CIP_PS_RFQ_RFP\PS_Open\PS 20 014 Landscape Services-Urban Renewal\CONTRACT\PS 20 014 Landscape Services-Urban Renewal.docx

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: IT Director Michael Dobaj

SUBJECT:

MOXFIVE Contract for Network Restoration

STAFF RECOMMENDATION:

Staff recommends retroactively approving the MOXFIVE agreement for $142,755.00, which is for the Technical Support provided by MOXFIVE to determine the root cause and recover from the Network Disruption Event that happened in February 2023.

EXECUTIVE SUMMARY:

The agreement outlines what services would be provided by MOXFIVE, to determine the details of the event, remediation, restoration, and prevention steps specifically to this type of event.

BACKGROUND:

On the morning of Monday February 6th, IT Staff noticed and was informed of issues relating to many of the city systems. After a review of these services, it was quickly determined that a potential disruption event occurred. IT staff immediately contacted the Cities HR Team and our Insurance carrier to begin the process of starting a claim and enlisting their remediation team. In order to address the network disruption, the City Manager immediately entered into a contract with MOXFIVE to assist with the city's response to the event.

The insurance carrier enlisted Cipriani & Werner for legal services specifically for this type of event and MOXFIVE for technical support for this type of event.

Cipriani & Werner and MOXFIVE are specialists in this area and the Cities Legal team and IT Staff do not have the tools or expertise needed to determine the details of the event or determine any potential legal requirements the city may need to follow.

As soon as those resource were available, IT Staff began working with MOXFIVE to immediately contain the situation and start the forensics needed to determine how this

event occurred, to circumvent any current access as well as prevent any future access via the same method.

As the forensics process continued, IT staff were able to make recommended adjustments to IT services or install tools supplied by the remediation team to help with the forensics as well as supply improved security for the city.

Once the immediate threat was mitigated, recovery discussions and process started to be able to bring the city back to full operational capacity.

The total cost to the city to respond to the event is approximately $98,087.

OPTIONS:

1. Approve acceptance of agreement.

BUDGET IMPACT:

Amount:	$142,755
FY(s):	2023
Funding Source(s):	General Fund

MOXFIVE

Statement of Work: Incident Management

Prepared for:
City of Oregon City

MOXFIVE - City of Oregon City - Incident Management - SOW #2

This Statement of Work ("SOW") is made and entered into as of the earlier date on the signature block below ("SOW Effective Date"), by and between MOXFIVE, LLC ("MOXFIVE") and Cipriani & Werner P.C. ("Counsel") on behalf of City of Oregon City ("Client"). This SOW shall be governed by the terms and conditions set forth in the Agreement dated Feb 6, 2023 ("Agreement").

Description of Services

During the term of this SOW, MOXFIVE agrees to provide the following Services as directed by Counsel:

- Task: Threat Actor Communications
  MOXFIVE may support Client with the following tasks:
  - Advise on, or perform on Client's behalf, interactions with the threat actor to ascertain operationally significant details about the incident or decryption procedure.
  - If Client decides to make a cryptocurrency transaction, Client will engage with any such third-party provider Money Services Business directly and would be responsible to that provider for any payment or related expenses. MOXFIVE follows FinCEN and other relevant agency guidance and adheres to regulatory obligations that may include sharing required information with government agencies.

Deliverables

The Deliverables to be produced in accordance with the Services are as follows:

- Written status updates: Provide updates for activities that include a summary of activities completed, plans for the next reporting period, issues requiring attention, and budgetary updates.

Fees, Expenses, and Invoicing

This SOW is a fixed fee agreement. Client agrees to pay the fees based on the fixed fee amounts outlined below.

Client agrees to pay the fixed fee outlined in the table below. MOXFIVE will invoice Client 50% of the fixed fee upon contract signature and the remaining 50% upon completion of Services.

Task Name	Price
Threat Actor Communication	$7,500.00
Total	$7,500.00

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Client shall reimburse MOXFIVE for the following expense categories that are directly attributable to work performed under this SOW:

- Travel and living expenses, if required
- Postage and courier services
- Other expenses incurred from Services performed under this SOW

Payment for these services will be in accordance with the terms of the Agreement.

Assumptions

Client will support Services based on the following assumptions:

- Client will provide relevant access to credentials and personnel for project coordination.
- Client will assist with any onsite requirements.
- MOXFIVE may deploy supporting technologies to expedite analysis, containment, and recovery efforts during this engagement. These solutions include, but are not limited to, endpoint detection and response, data mining, remote monitoring & management, multifactor authentication, network segmentation, and privileged access management (see Exhibit A – MOXFIVE Marketplace Technology Alliances). In the event that the Client desires to procure such tools beyond this engagement, MOXFIVE will facilitate the procurement through MOXFIVE as part of delivering these services.

Contact Information

	MOXFIVE Incident Manager	MOXFIVE Technical Advisor
Name	Angela Min	James Gimbi
Email	angela.min@moxfive.com	james.gimbi@moxfive.com
Phone	(512) 800-9037	(717) 222-1025
Address	1751 Pinnacle Dr., Suite 600, Tysons, VA 22102	

	Client Technical Point of Contact	Client Accounts Payable
Name		
Address		
Title		
Email		
Phone		

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MOXFIVE

Acceptance of SOW and Agreement

By signing below, the Parties hereby agree to the terms contained herein as of the SOW effective date.

Agreed and Accepted for MOXFIVE

Angela Min

Signature

Angela Min

Name

Incident Manager

Title

2023-02-08

Date

Agreed and Accepted for Client

Anthony J. Konkol III

Signature

Anthony J. Konkol III

Name

City Manager

Title

2-8-23

Date

Agreed and Accepted for Counsel

Signature

Daniel Haier, Esq.

Name

Partner, Cipriani & Werner

Title

2/8/23

Date

Please return signed copy to the MOXFIVE POC

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Exhibit A – MOXFIVE Marketplace Technology Alliances

I. Endpoint Detection and Response
   a. CrowdStrike
   b. SentinelOne
   c. Cortex
   d. Carbon Black
II. Data Mining
   a. Actfore
III. Remote Monitoring & Management
   a. NinjaRMM
   b. SolarWinds
   c. Atera
IV. Multi-Factor Authentication
   a. Okta
   b. Duo
V. Network Segmentation
   a. Illumio
   b. Guardicore
VI. Privileged Access Management
   a. Delinea
   b. CyberArk

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MOXFIVE

Statement of Work: Incident Management

Prepared for:
City of Oregon City

MOXFIVE - City of Oregon City - Incident Management - SOW 1 - Amendment #2

This Statement of Work ("SOW") is made and entered into as of the earlier date on the signature block below ("SOW Effective Date"), by and between MOXFIVE, LLC ("MOXFIVE") and Cipriani & Werner P.C. ("Counsel") on behalf of City of Oregon City ("Client"). This SOW shall be governed by the terms and conditions set forth in the Agreement dated Feb 6, 2023 ("Agreement").

Description of Services

During the term of this SOW, MOXFIVE agrees to provide the following Services as directed by Counsel:

- Task: MOXFIVE Technical Advisory Services
  - Technical Advisory Support: Advise on creation of an effective response strategy and provide technical guidance throughout its execution.
  - Response Coordination: Coordinate with and oversee service providers supporting response activities.
  - Engagement Management: Provide project oversight, manage engagement economics, and communicate project status to appropriate stakeholders.

- Task: Server Support

  Client requested MOXFIVE's support in restoring servers impacted during a ransomware incident. To assist with restoring services to the environment, MOXFIVE will assist Client with the following tasks:
  - Install Remote Monitoring and Management ("RMM") utility on systems to facilitate remote access to servers.
    - MOXFIVE will provide the RMM utility for Client to install on the systems.
  - Assist forensic provider with the deployment of Endpoint Detection and Response ("EDR") solution to endpoints.
  - Review the health of Active Directory ("AD") services.
  - Review AD in an attempt to identify possible malicious changes made by the threat actor.
  - Review backup solution to determine feasibility of backups.
  - Remotely restore from backups up to 40 servers.
    - If restoration efforts are not feasible, MOXFIVE will rebuild up to 40 servers.
      - MOXFIVE will set up the operating systems for the rebuilt servers and ensure that Endpoint Detection and Response ("EDR") software, provided by the forensic provider, is installed.
      - Client will install all necessary applications on the rebuilt servers and validate application functionality.
      - An additional level-of-effort outside the scope of this SOW may be necessary if rebuilds are required.
  - Develop and create workstation remediation plan.
    - An additional level-of-effort outside the scope of this SOW may be necessary, if assistance with workstation remediation plan is required.

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- Task: Forensics Support
  Client requested MOXFIVE's support to investigate a cybersecurity incident. MOXFIVE may support Client with the following tasks:
  - Deploy Endpoint Detection and Response ("EDR") agent to compatible systems in the environment.
  - Issue forensic collection requests, if required.
  - Analyze artifacts to identify operationally significant details, including sensitive data exposure and containment requirements.
  - Provide recommendations to contain the threat actor.

- Task: Travel
  Client requested MOXFIVE's support in providing technicians onsite to assist with recovery work. To accomplish this, MOXFIVE will assist Client with the following tasks:
  - Travel onsite, to Oregon City to provide onsite Server Support.
  - MOXFIVE will coordinate with Client related to tasks under this SOW and seek Client's written approval prior to scheduling resources.

Deliverables

The Deliverables to be produced in accordance with the Services are as follows:

- **Written status updates:** Provide updates for activities that include a summary of activities completed, plans for the next reporting period, issues requiring attention, and budgetary updates.
- **Summary Report:** Provide summary of findings and observations as directed by Counsel.

Fees, Expenses, and Invoicing

This SOW is a time and materials ("T&M") agreement. Client agrees to pay the fees based on the hourly rates outlined below and based on MOXFIVE's actual time spent. MOXFIVE will not exceed the estimated fees listed in the tables below without prior written approval from Client. MOXFIVE will provide notice to Client and Counsel when it reaches 80% and 100% of the estimated high fees.

Estimated Level of Effort - Low

Task Name	Hourly Rate	Estimated Hours	Estimated Cost
MOXFIVE Technical Advisory	$395.00	25	$9,875.00
Server Support	$275.00	40	$11,000.00

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Task Name	Hourly Rate	Estimated Hours	Estimated Cost
Forensics Support	$350.00	50	$17,500.00
Travel	$150.00	0	$0.00

Estimated Total $38,375.00

Estimated Level of Effort - High

Task Name	Hourly Rate	Estimated Hours	Estimated Cost
MOXFIVE Technical Advisory	$395.00	95	$37,525.00
Server Support	$275.00	110	$30,250.00
Forensics Support	$350.00	215	$75,250.00
Travel	$150.00	0	$0.00

Estimated Total $143,025.00

MOXFIVE estimates the fees for the services described above to be between $38,375.00 and $143,025.00. Client shall reimburse MOXFIVE for the following expense categories that are directly attributable to work performed under this SOW:

- Technology fees to provide the endpoint investigation and security stack covering up to 2,000 endpoints for 45 days at $7,500.
    - Added by Amendment 2: Client elects to extend this endpoint coverage for an additional 45 days at and additional $7,500.
- Travel and living expenses, if required
- Postage and courier services
- Other expenses incurred from Services performed under this SOW.

In accordance with the services provided, MOXFIVE will invoice Client monthly. Payment for these services will be in accordance with the terms of the Agreement.

Assumptions

Client will support Services based on the following assumptions:

- Client will provide relevant access to credentials and personnel for project coordination.
- Client will assist with any onsite requirements.
- MOXFIVE may deploy supporting technologies to expedite analysis, containment, and recovery efforts during this engagement. These solutions include, but are not limited to, endpoint detection and

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response, data mining, remote monitoring & management, multifactor authentication, network segmentation, and privileged access management (see Exhibit A – MOXFIVE Marketplace Technology Alliances). In the event that the Client desires to procure such tools beyond this engagement, MOXFIVE will facilitate the procurement through MOXFIVE as part of delivering these services.

- MOXFIVE hereby grants to Client and Counsel a non-exclusive, revocable and limited license for Client and Counsel and their employees and agents to use the MOXFIVE platform made available at http://platform.moxfive.com/ ("Platform"). Client and Counsel will only use the Platform as provided in this SOW and the Agreement. Except as permitted by applicable law, Client and Counsel agree to not decompile, disassemble, or reverse engineer the Platform. Client and Counsel will be responsible and liable for use of the Platform by its employees and agents in contravention to this SOW, the Agreement and the applicable terms of use.

Contact Information

	MOXFIVE Incident Manager	MOXFIVE Technical Advisor
Name	Angela Min	James Gimbi
Email	Angela.Min@moxfive.com	James.Gimbi@moxfive.com
Phone	(512) 800-9037	(717) 222-1025
Address	1751 Pinnacle Dr., Suite 600, Tysons, VA 22102	

	Client Technical Point of Contact	Client Accounts Payable
Name	Michael Dobaj	Mat Zook
Address	625 Center Street Oregon City OR 97045	625 Center Street Oregon City, OR 97045
Title	IT Director	Finance Director
Email	mobaj@orcity.org	mzook@orcity.org
Phone	(971) 204-4617	(503) 657-0891

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Acceptance of SOW and Agreement

By signing below, the Parties hereby agree to the terms contained herein as of the SOW effective date.

Agreed and Accepted for MOXFIVE

Angela Min

Signature

Angela Min

Name

Incident Manager

Title

2023-03-22

Date

Agreed and Accepted for Client

Michael Dobaj

Signature

Michael Dobaj

Name

IT Director

Title

2023-03-22

Date

Agreed and Accepted for Counsel

Daniel Haier

Signature

Daniel Haier

Name

Partner, Cipriani & Werner

Title

2023-03-22

Date

Please return signed copy to the MOXFIVE POC

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Signature Certificate

Reference number: 8OCWJ-2REDE-BYZ3B-CYFUE

Signer	Timestamp	Signature
Email: mdobaj@orcity.org Shared via link		Michael Dobaj
Sent:	22 Mar 2023 18:42:55 UTC	
Viewed:	22 Mar 2023 18:48:53 UTC	
Signed:	22 Mar 2023 19:07:55 UTC	IP address: 198.236.193.98 Location: Oregon City, United States
Daniel Haier Email: dhaier@c-wlaw.com		Daniel Haier
Sent:	22 Mar 2023 18:42:55 UTC	
Viewed:	22 Mar 2023 19:53:32 UTC	
Signed:	22 Mar 2023 19:54:25 UTC	
Recipient Verification:		IP address: 34.200.126.13
✔Email verified	22 Mar 2023 19:53:32 UTC	Location: Ashburn, United States
Angela Min Email: angela.min@moxfive.com Shared via link		Angela Min
Sent:	22 Mar 2023 18:42:55 UTC	
Viewed:	23 Mar 2023 14:54:49 UTC	
Signed:	23 Mar 2023 14:55:00 UTC	IP address: 74.96.113.113 Location: Lorton, United States

Document completed by all parties on:

23 Mar 2023 14:55:00 UTC

Page 1 of 1

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PandaDoc is a document workflow and certified eSignature solution trusted by 40,000+ companies worldwide.

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: IT Director Michael Dobaj

SUBJECT:

Microsoft 3 Year Enterprise Agreement

STAFF RECOMMENDATION:

Staff recommends approving the 3 Year Enterprise Agreement with Microsoft to support the continued use of Microsoft Products and services such as Office 365 and the Microsoft Server Operating Systems for all servers.

EXECUTIVE SUMMARY:

All city systems are currently using Microsoft products or services that need a license to be able to use and access that product or service. This includes email, laptops / desktops and all servers for Tyler, GIS, and other critical systems.

IT has worked with our License vendor and all licenses on the new Enterprise Agreement have been adjusted to properly match what is currently being used or is needed for City operations and has also negotiated the best price available to the city.

Microsoft Licensing has been budgeted; however the total licensed cost is slightly higher than the previous 3-Year Enterprise Agreement.

BACKGROUND:

Microsoft requires a renewal of this agreement every 3 years to maintain those licenses and allow for the city as well as Microsoft to review and update the type and quantity of products and services needing to be licensed as well as update pricing that will be effective during the 3-Year term.

The city will be able to add licenses to our Enterprise Agreement throughout the year but will only be able to remove licenses during our annual “True-Up” review during years 2 & 3. Any changes that occur during the year will then be reflected in our annual payment shown below.

The city has been using Microsoft Services such as Office 365 and Windows Operating systems for many years. These products and services have been instrumental in our ability to support City Staff as well as Oregon City Residents and will continue to be a requirement to continue providing IT services.

As we continue to work with all City departments to update or improve city services for Staff as well as the public we will continue to need and utilize Microsoft products and services.

OPTIONS:

1. Approve 3-Year Enterprise Agreement
2. Do not approve the 3-Year Enterprise agreement

BUDGET IMPACT:

Amount:	$320,313.96 ($106,771.32 / Year)
FY(s):	2023, 2024, 2025
Funding Source(s):	100-170-6154 (General Fund)

Microsoft Volume Licensing

Amendment to Contract Documents

Enrollment Number 5-0000009993896

This amendment ("Amendment") is entered into between the parties identified on the attached program signature form. It amends the Enrollment or Agreement identified above. All terms used but not defined in this Amendment will have the same meanings provided in that Enrollment or Agreement.

Enterprise Enrollment
Invoice for Quoted Price
Amendment ID M97

The price quoted to Enrolled Affiliate is a fixed price based on an estimated order submission date. Microsoft will invoice Enrolled Affiliate based on this fixed price quote. If this order is submitted later than the estimated order submission date, Enrolled Affiliate will be charged for net new Monthly Subscriptions (including Online Services) for the period during which these services were not provided. For Indirect models, Pricing to Enrolled Affiliate is agreed between Enrolled Affiliate and Enrolled Affiliate's Reseller.

SKU Number	SKU Description	Existing Quantity	Incremental quantities
AAD-34700	M365 G3 Unified FSA GCC Sub Per User	0	200
AAD-34704	M365 G3 Unified FUSL GCC Sub Per User	0	87
AAL-45735	M365 G5 GCC Sub Per User	0	4
P3U-00001	Visio P2 GCC Sub Per User	0	10
DDJ-00001	Power BI Pro GCC Sub Per User	3	0
NYH-00001	Teams AC with Dial Out US/CA GCC Sub Add-on	0	287

Except for changes made by this Amendment, the Enrollment or Agreement identified above remains unchanged and in full force and effect. If there is any conflict between any provision in this Amendment and any provision in the Enrollment or Agreement identified above, this Amendment shall control.

This Amendment must be attached to a signature form to be valid.

Microsoft Internal Use Only:

(M97)EnrAmend(Ind)(InvoiceforQuotedPrice)(WW)(ENG)(Jan2023)v2(IU).docx		M97	B

Enterprise Enrollment Product Selection Form

Microsoft | Volume Licensing

Proposal ID

1314161.002

Enrollment Number

Language: English (United States)

Enrolled Affiliate's Enterprise Products and Enterprise Online Services summary for the initial order:

Profile	Qualified Devices	Qualified Users	Device / User Ratio	CAL Licensing Model
Enterprise	291	291	1.0	User

Products	Enterprise Quantity
Microsoft 365 Enterprise	
M365 G5 GCC	4
M365 G3 GCC USL Unified	87
M365 G3 GCC FromSA Unified	200

Enrolled Affiliate's Product Quantities:

Price Group	1	2	3	4
Enterprise Products	Office Professional Plus + M365 Apps for Enterprise + Office 365 (Plans E3 and E5) + Microsoft 365 Enterprise	Client Access License + Office 365 (Plans E1, E3 and E5) + Microsoft 365 Enterprise	Client Access License + Windows Intune + EMS USL + Microsoft 365 Enterprise	Win E3 + Win E5 + Win VDA + Microsoft 365 Enterprise
Quantity	291	291	291	291

Enrolled Affiliate's Price Level:

Product Offering / Pool	**Price Level**
Enterprise Products and Enterprise Online Services USLs: Unless otherwise indicated in associated contract documents, Price level set using the highest quantity from Groups 1 through 4.	D
Additional Product Application Pool: Unless otherwise indicated in associated contract documents, Price level set using quantity from Group 1.	D
Additional Product Server Pool: Unless otherwise indicated in associated contract documents, Price level set using the highest quantity from Group 2 or 3.	D
Additional Product Systems Pool: Unless otherwise indicated in associated contract documents, Price level set using quantity from Group 4.	D

Notes	
Unless otherwise indicated in the associated contract documents, the price level for each Product offering / pool is set as described above, based upon the quantity to price level mapping below:	
Quantity of Licenses and Software Assurance	**Price Level**
2,399 and below	A
2,400 to 5,999	B
6,000 to 14,999	C
15,000 and above	D
Note 1: Enterprise Online Services may not be available in all locations. Please see the Product List for a list of locations where these may be purchased.	
Note 2: If Enrolled Affiliate does not order an Enterprise Product or Enterprise Online Service associated with an applicable Product pool, the price level for Additional Products in the same pool will be price level “A” throughout the term of the Enrollment. Refer to the Qualifying Government Entity Addendum pricing provision for more details on price leveling.	

Microsoft Volume Licensing

Program Signature Form

MBA/MBSA number	
Agreement number	01E73877

5-0000009993896

Note: Enter the applicable active numbers associated with the documents below. Microsoft requires the associated active number be indicated here, or listed below as new.

For the purposes of this form, "Customer" can mean the signing entity, Enrolled Affiliate, Government Partner, Institution, or other party entering into a volume licensing program agreement.

This signature form and all contract documents identified in the table below are entered into between the Customer and the Microsoft Affiliate signing, as of the effective date identified below.

Contract Document	Number or Code
<Choose Agreement>	Document Number or Code
<Choose Agreement>	Document Number or Code
<Choose Agreement>	Document Number or Code
<Choose Agreement>	Document Number or Code
Enterprise Agreement	X20-10635
<Choose Enrollment/Registration>	Document Number or Code
<Choose Enrollment/Registration>	Document Number or Code
<Choose Enrollment/Registration>	Document Number or Code
<Choose Enrollment/Registration>	Document Number or Code
<Choose Enrollment/Registration>	Document Number or Code
Amendment	M97(new)
Product Selection Form	1314161.002 (new)
Document Description	Document Number or Code
Document Description	Document Number or Code
Document Description	Document Number or Code

By signing below, Customer and the Microsoft Affiliate agree that both parties (1) have received, read and understand the above contract documents, including any websites or documents incorporated by reference and any amendments and (2) agree to be bound by the terms of all such documents.

Customer
Name of Entity (must be legal entity name)* City of Oregon City **Signature*** _____ **Printed First and Last Name*** **Printed Title** **Signature Date***
Tax ID

** indicates required field*

Microsoft Affiliate
Microsoft Corporation
Signature _____ **Printed First and Last Name** **Printed Title** **Signature Date** (date Microsoft Affiliate countersigns)
Agreement Effective Date (may be different than Microsoft's signature date)

Optional 2nd Customer signature or Outsourcer signature (if applicable)

Customer
Name of Entity (must be legal entity name)*
Signature* _____
Printed First and Last Name*
Printed Title
Signature Date*

** indicates required field*

Outsourcer
Name of Entity (must be legal entity name)*
Signature* _____
Printed First and Last Name*
Printed Title
Signature Date*

** indicates required field*

If Customer requires additional contacts or is reporting multiple previous Enrollments, include the appropriate form(s) with this signature form.

After this signature form is signed by the Customer, send it and the Contract Documents to Customer's channel partner or Microsoft account manager, who must submit them to the following address. When the signature form is fully executed by Microsoft, Customer will receive a confirmation copy.

Microsoft Corporation
Dept. 551, Volume Licensing
6880 Sierra Center Parkway
Reno, Nevada 89511
USA

Dell Customer Confidential

Quotation

Drew Byford
Drew_Byford@Dell.com
512-647-6646

Customer: OREGON CITY, OREGON
Customer#: 97629736
Previous Microsoft Enterprise Agreement (EA) #: 8768646

Date of Issue: 4/12/2023
Quote Expires: BUDGETARY

PLEASE SEE IMPORTANT TERMS AND CONDITIONS AT THE BOTTOM OF THIS QUOTATION

Section 1- Licenses and Software Assurance

Product Description	Mfg#	Quantity	Unit Price	Ext. Price
Win Server DC Core ALng SA 2L	9EA-00278	32	$125.58	$4,018.56
		Total Year 1 Payment		$4,018.56
Win Server DC Core ALng SA 2L	9EA-00278	32	$125.58	$4,018.56
		Total Year 2 Payment		$4,018.56
Win Server DC Core ALng SA 2L	9EA-00278	32	$125.58	$4,018.56
		Total Year 3 Payment		$4,018.56
		TOTAL SECTION 1 YEARS 1 - 3		$12,055.68

Section 2- Monthly Subscriptions

Product Description	Mfg#	Quantity	Months	Unit Price	Ext. Price
M365 G3 Unified FSA GCC Sub Per User	AAD-34700	200	12	$27.20	$65,280.00
M365 G3 Unified FUSL GCC Sub Per User	AAD-34704	87	12	$32.00	$33,408.00
M365 G5 GCC Sub Per User	AAL-45735	4	12	$50.67	$2,432.16
AzureprepaymentG ShrdSvr ALNG SubsVL MVL Commit Provision	J5U-00004	1	12	$0.00	$0.00
Power BI Pro GCC Sub Per User	DDJ-00001	3	12	$7.55	$271.80
Visio P2 GCC Sub Per User	P3U-00001	10	12	$11.34	$1,360.80
Audio Conf Select Dial Out GCC	NYH-00001	291	12	$0.00	$0.00
		Total Year 1 Payment			$102,752.76
M365 G3 Unified FSA GCC Sub Per User	AAD-34700	200	12	$27.20	$65,280.00

M365 G3 Unified FUSL GCC Sub Per User	AAD-34704	87	12	$32.00	$33,408.00
M365 G5 GCC Sub Per User	AAL-45735	4	12	$50.67	$2,432.16
AzureprepaymentG ShrdSvr ALNG SubsVL MVL Commit Provision	J5U-00004	1	12	$0.00	$0.00
Power BI Pro GCC Sub Per User	DDJ-00001	3	12	$7.55	$271.80
Visio P2 GCC Sub Per User	P3U-00001	10	12	$11.34	$1,360.80
Audio Conf Select Dial Out GCC	NYH-00001	291	12	$0.00	$0.00
		Total Year 2 Payment			$102,752.76
M365 G3 Unified FSA GCC Sub Per User	AAD-34700	200	12	$27.20	$65,280.00
M365 G3 Unified FUSL GCC Sub Per User	AAD-34704	87	12	$32.00	$33,408.00
M365 G5 GCC Sub Per User	AAL-45735	4	12	$50.67	$2,432.16
AzureprepaymentG ShrdSvr ALNG SubsVL MVL Commit Provision	J5U-00004	1	12	$0.00	$0.00
Power BI Pro GCC Sub Per User	DDJ-00001	3	12	$7.55	$271.80
Visio P2 GCC Sub Per User	P3U-00001	10	12	$11.34	$1,360.80
Audio Conf Select Dial Out GCC	NYH-00001	291	12	$0.00	$0.00
		Total Year 3 Payment			$102,752.76
		TOTAL SECTION 2 YEARS 1 - 3			$308,258.28

Notes: Term 02/01/2023 - 01/31/2026

Total Annual Payment Yr 1	$106,771.32
Total Annual Payment Yr 2	$106,771.32
Total Annual Payment Yr 3	$106,771.32
Grand Total	$320,313.96

**Customer must complete all required Microsoft enrollment documentation. The EA cannot be executed (processed at Microsoft) until both the complete documents and PO are received for the first annual payment.

1) Customer's purchase is subject to Dell's Terms and Conditions of Sale found at www.dell.com, unless Customer has a separate purchase agreement with Dell.

2) Sales/use tax is based on the "ship to" address on your invoice. Please indicate your taxability status on your purchase order.If exempt, Customer must have an Exemption Certificate on file.

3) If you have a question re: your tax status, please contact your Dell | ASAP Software inside sales representative listed above.Shipments to California: for certain products, a State Environmental Fee of up to $10 per item may be applied to your invoice. Prices do not reflect this fee unless noted. For more information, refer to www.dell.com/environmentalfee.

4) All product descriptions and prices are based on latest information available and are subject to change without notice or obligation.

5) All prices are based on Net 30 Terms. If not shown, shipping, handling, taxes, and other fees will be added at the time of order, where applicable.

6) Customer understands and acknowledges that all warranties, representations and returns are subject to the manufacturer, publisher or distributor guidelines.

Future Pricing

Enterprise Products

Product Description	Mfg Part #	Pricing Information		
		Net Unit True Up Price		
True-Ups - Enterprise Products		Year 1 - Payment 1	Year 2 - Payment 1	Year 3 - Payment 1
		Net Unit True Up Price		
Step-Ups - Enterprise Products		Year 1 - Payment 1	Year 2 - Payment 1	Year 3 - Payment 1
		Net Unit True Up Price		
Higher Editions - Enterprise Products		Year 1 - Payment 1	Year 2 - Payment 1	Year 3 - Payment 1

Enterprise Online Services

Product Description	Mfg Part #	Net Unit Price / month
Step-Ups - Enterprise Online Services		
Higher Editions - Enterprise Online Services		
Future Monthly- Enterprise Online Services		

Additional Online Products

Product Description	Mfg Part #	Net Unit Price / month
Online Services		

Microsoft Volume Licensing

Enterprise Enrollment State and Local

Enterprise Enrollment number *(Microsoft to complete)*	
Previous Enrollment number *(Reseller to complete)*	8768646

Framework ID *(if applicable)*	5-0000009993896

This Enrollment must be attached to a signature form to be valid.

This Microsoft Enterprise Enrollment is entered into between the entities as identified in the signature form as of the effective date. Enrolled Affiliate represents and warrants it is the same Customer, or an Affiliate of the Customer, that entered into the Enterprise Agreement identified on the program signature form.

This Enrollment consists of: (1) these terms and conditions, (2) the terms of the Enterprise Agreement identified on the signature form, (3) the Product Selection Form, (4) the Product Terms, (5) the Online Services Terms, (6) any Supplemental Contact Information Form, Previous Agreement/Enrollment form, and other forms that may be required, and (7) any order submitted under this Enrollment. This Enrollment may only be entered into under a 2011 or later Enterprise Agreement. By entering into this Enrollment, Enrolled Affiliate agrees to be bound by the terms and conditions of the Enterprise Agreement.

All terms used but not defined are located at http://www.microsoft.com/licensing/contracts. In the event of any conflict the terms of this Agreement control.

Effective date. If Enrolled Affiliate is renewing Software Assurance or Subscription Licenses from one or more previous Enrollments or agreements, then the effective date will be the day after the first prior Enrollment or agreement expires or terminates. If this Enrollment is renewed, the effective date of the renewal term will be the day after the Expiration Date of the initial term. Otherwise, the effective date will be the date this Enrollment is accepted by Microsoft. Any reference to "anniversary date" refers to the anniversary of the effective date of the applicable initial or renewal term for each year this Enrollment is in effect.

Term. The initial term of this Enrollment will expire on the last day of the month, 36 full calendar months from the effective date of the initial term. The renewal term will expire 36 full calendar months after the effective date of the renewal term.

Terms and Conditions

1. Definitions.

Terms used but not defined in this Enrollment will have the definition in the Enterprise Agreement. The following definitions are used in this Enrollment:

"Additional Product" means any Product identified as such in the Product Terms and chosen by Enrolled Affiliate under this Enrollment.

"Community" means the community consisting of one or more of the following: (1) a Government, (2) an Enrolled Affiliate using eligible Government Community Cloud Services to provide solutions to a Government or a qualified member of the Community, or (3) a Customer with Customer Data that is subject to Government regulations for which Customer determines and Microsoft agrees that the use of Government Community Cloud Services is appropriate to meet Customer's regulatory requirements.

Membership in the Community is ultimately at Microsoft's discretion, which may vary by Government Community Cloud Service.

"Enterprise Online Service" means any Online Service designated as an Enterprise Online Service in the Product Terms and chosen by Enrolled Affiliate under this Enrollment. Enterprise Online Services are treated as Online Services, except as noted.

"Enterprise Product" means any Desktop Platform Product that Microsoft designates as an Enterprise Product in the Product Terms and chosen by Enrolled Affiliate under this Enrollment. Enterprise Products must be licensed for all Qualified Devices and Qualified Users on an Enterprise-wide basis under this program.

"Expiration Date" means the date upon which the Enrollment expires.

"Federal Agency" means a bureau, office, agency, department or other entity of the United States Government.

"Government" means a Federal Agency, State/Local Entity, or Tribal Entity acting in its governmental capacity.

"Government Community Cloud Services" means Microsoft Online Services that are provisioned in Microsoft's multi-tenant data centers for exclusive use by or for the Community and offered in accordance with the National Institute of Standards and Technology (NIST) Special Publication 800-145. Microsoft Online Services that are Government Community Cloud Services are designated as such in the Use Rights and Product Terms.

"Industry Device" (also known as line of business device) means any device that: (1) is not useable in its deployed configuration as a general purpose personal computing device (such as a personal computer), a multi-function server, or a commercially viable substitute for one of these systems; and (2) only employs an industry or task-specific software program (e.g. a computer-aided design program used by an architect or a point of sale program) ("Industry Program"). The device may include features and functions derived from Microsoft software or third-party software. If the device performs desktop functions (such as email, word processing, spreadsheets, database, network or Internet browsing, or scheduling, or personal finance), then the desktop functions: (1) may only be used for the purpose of supporting the Industry Program functionality; and (2) must be technically integrated with the Industry Program or employ technically enforced policies or architecture to operate only when used with the Industry Program functionality.

"Managed Device" means any device on which any Affiliate in the Enterprise directly or indirectly controls one or more operating system environments. Examples of Managed Devices can be found in the Product Terms.

"Qualified Device" means any device that is used by or for the benefit of Enrolled Affiliate's Enterprise and is: (1) a personal desktop computer, portable computer, workstation, or similar device capable of running Windows Pro locally (in a physical or virtual operating system environment), or (2) a device used to access a virtual desktop infrastructure ("VDI"). Qualified Devices do not include any device that is: (1) designated as a server and not used as a personal computer, (2) an Industry Device, or (3) not a Managed Device. At its option, the Enrolled Affiliate may designate any device excluded above (e.g., Industry Device) that is used by or for the benefit of the Enrolled Affiliate's Enterprise as a Qualified Device for all or a subset of Enterprise Products or Online Services the Enrolled Affiliate has selected.

"Qualified User" means a person (e.g., employee, consultant, contingent staff) who: (1) is a user of a Qualified Device, or (2) accesses any server software requiring an Enterprise Product Client Access License or any Enterprise Online Service. It does not include a person who accesses server software or an Online Service solely under a License identified in the Qualified User exemptions in the Product Terms.

"Reseller" means an entity authorized by Microsoft to resell Licenses under this program and engaged by an Enrolled Affiliate to provide pre- and post-transaction assistance related to this agreement;

"Reserved License" means for an Online Service identified as eligible for true-ups in the Product Terms, the License reserved by Enrolled Affiliate prior to use and for which Microsoft will make the Online Service available for activation.

"State/Local Entity" means (1) any agency of a state or local government in the United States, or (2) any United States county, borough, commonwealth, city, municipality, town, township, special purpose district, or other similar type of governmental instrumentality established by the laws of Customer's state and located within Customer's state's jurisdiction and geographic boundaries.

"Tribal Entity" means a federally recognized tribal entity performing tribal governmental functions and eligible for funding and services from the U.S. Department of Interior by virtue of its status as an Indian tribe.

"Use Rights" means, with respect to any licensing program, the use rights or terms of service for each Product and version published for that licensing program at the Volume Licensing Site and updated from time to time. The Use Rights include the Product-Specific License Terms, the License Model terms, the Universal License Terms, the Data Protection Terms, and the Other Legal Terms. The Use Rights supersede the terms of any end user license agreement (on-screen or otherwise) that accompanies a Product.

"Volume Licensing Site" means http://www.microsoft.com/licensing/contracts or a successor site.

2. Order requirements.

a. Minimum order requirements. Enrolled Affiliate's Enterprise must have a minimum of 250 Qualified Users or Qualified Devices. The initial order must include at least 250 Licenses for Enterprise Products or Enterprise Online Services.

(i) Enterprise commitment. Enrolled Affiliate must order enough Licenses to cover all Qualified Users or Qualified Devices, depending on the License Type, with one or more Enterprise Products or a mix of Enterprise Products and the corresponding Enterprise Online Services (as long as all Qualified Devices not covered by a License are only used by users covered with a user License).

(ii) Enterprise Online Services only. If no Enterprise Product is ordered, then Enrolled Affiliate need only maintain at least 250 Subscription Licenses for Enterprise Online Services**.**

b. Additional Products. Upon satisfying the minimum order requirements above, Enrolled Affiliate may order Additional Products.

c. Use Rights for Enterprise Products. For Enterprise Products, if a new Product version has more restrictive use rights than the version that is current at the start of the applicable initial or renewal term of the Enrollment, those more restrictive use rights will not apply to Enrolled Affiliate's use of that Product during that term.

d. Country of usage. Enrolled Affiliate must specify the countries where Licenses will be used on its initial order and on any additional orders.

e. Resellers. Enrolled Affiliate must choose and maintain a Reseller authorized in the United States. Enrolled Affiliate will acquire its Licenses through its chosen Reseller. Orders must be submitted to the Reseller who will transmit the order to Microsoft. The Reseller and Enrolled Affiliate determine pricing and payment terms as between them, and Microsoft will invoice the Reseller based on those terms. Throughout this Agreement the term "price" refers to reference price. Resellers and other third parties do not have authority to bind or impose any obligation or liability on Microsoft.

f. Adding Products.

(i) Adding new Products not previously ordered. New Enterprise Products or Enterprise Online Services may be added at any time by contacting a Microsoft Account Manager or Reseller. New Additional Products, other than Online Services, may be used if an order is placed in the month the Product is first used. For Additional Products that are Online Services, an initial order for the Online Service is required prior to use.

(ii) Adding Licenses for previously ordered Products. Additional Licenses for previously ordered Products other than Online Services may be added at any time but must be included in the next true-up order. Additional Licenses for Online Services must be ordered prior to use, unless the Online Services are (1) identified as eligible for true-up in the Product Terms or (2) included as part of other Licenses.

g. True-up requirements. Enrolled Affiliate must submit an annual true-up order that accounts for any changes since the initial order or last order. If there are no changes, then an update statement must be submitted instead of a true-up order.

(i) Enterprise Products. For Enterprise Products, Enrolled Affiliate must determine the number of Qualified Devices and Qualified Users (if ordering user-based Licenses) at the time the true-up order is placed and must order additional Licenses for all Qualified Devices and Qualified Users that are not already covered by existing Licenses, including any Enterprise Online Services.

(ii) Additional Products. For Additional Products that have been previously ordered under this Enrollment, Enrolled Affiliate must determine the maximum number of Additional Products used since the latter of the initial order, the last true-up order, or the prior anniversary date and submit a true-up order that accounts for any increase.

(iii) Online Services. For Online Services identified as eligible for true-up in the Product Terms, Enrolled Affiliate may place a reservation order for the additional Licenses prior to use and payment may be deferred until the next true-up order. Microsoft will provide a report of Reserved Licenses ordered but not yet invoiced to Enrolled Affiliate and its Reseller. Reserved Licenses will be invoiced retrospectively to the month in which they were ordered.

(iv) Subscription License reductions. Enrolled Affiliate may reduce the quantity of Subscription Licenses at the Enrollment anniversary date on a prospective basis if permitted in the Product Terms, as follows:

1) For Subscription Licenses that are part of an Enterprise-wide purchase, Licenses may be reduced if the total quantity of Licenses and Software Assurance for an applicable group meets or exceeds the quantity of Qualified Devices and Qualified Users (if ordering user-based Licenses) identified on the Product Selection Form, and includes any additional Qualified Devices and Qualified Users added in any prior true-up orders. Step-up Licenses do not count towards this total count.

2) For Enterprise Online Services that are not a part of an Enterprise-wide purchase, Licenses can be reduced as long as the initial order minimum requirements are maintained.

3) For Additional Products available as Subscription Licenses, Enrolled Affiliate may reduce the Licenses. If the License count is reduced to zero, then Enrolled Affiliate's use of the applicable Subscription License will be cancelled.

Invoices will be adjusted to reflect any reductions in Subscription Licenses at the true-up order Enrollment anniversary date and effective as of such date.

(v) Update statement. An update statement must be submitted instead of a true-up order if, since the initial order or last true-up order, Enrolled Affiliate's Enterprise: (1) has not changed the number of Qualified Devices and Qualified Users licensed with Enterprise Products or Enterprise Online Services; and (2) has not increased its usage of Additional Products. This update statement must be signed by Enrolled Affiliate's authorized representative.

(vi) True-up order period. The true-up order or update statement must be received by Microsoft between 60 and 30 days prior to each Enrollment anniversary date. The third-year true-up order or update statement is due within 30 days prior to the Expiration Date, and any license reservations within this 30 day period will not be accepted. Enrolled Affiliate

may submit true-up orders more often to account for increases in Product usage, but an annual true-up order or update statement must still be submitted during the annual order period.

(vii) Late true-up order. If the true-up order or update statement is not received when due, Microsoft will invoice Reseller for all Reserved Licenses not previously invoiced and Subscription License reductions cannot be reported until the following Enrollment anniversary date (or at Enrollment renewal, as applicable).

h. Step-up Licenses. For Licenses eligible for a step-up under this Enrollment, Enrolled Affiliate may step-up to a higher edition or suite as follows:

(i) For step-up Licenses included on an initial order, Enrolled Affiliate may order according to the true-up process.

(ii) If step-up Licenses are not included on an initial order, Enrolled Affiliate may step-up initially by following the process described in the Section titled "Adding new Products not previously ordered," then for additional step-up Licenses, by following the true-up order process.

i. Clerical errors. Microsoft may correct clerical errors in this Enrollment, and any documents submitted with or under this Enrollment, by providing notice by email and a reasonable opportunity for Enrolled Affiliate to object to the correction. Clerical errors include minor mistakes, unintentional additions and omissions. This provision does not apply to material terms, such as the identity, quantity or price of a Product ordered.

j. Verifying compliance. Microsoft may, in its discretion and at its expense, verify compliance with this Enrollment as set forth in the Enterprise Agreement.

3. Pricing.

a. Price Levels. For both the initial and any renewal term Enrolled Affiliate's Price Level for all Products ordered under this Enrollment will be Level "D" throughout the term of the Enrollment.

b. Setting Prices. Enrolled Affiliate's prices for each Product or Service will be established by its Reseller. Except for Online Services designated in the Product Terms as being exempt from fixed pricing, As long as Enrolled Affiliate continues to qualify for the same price level, Microsoft's prices for Resellers for each Product or Service ordered will be fixed throughout the applicable initial or renewal Enrollment term. Microsoft's prices to Resellers are reestablished at the beginning of the renewal term.

4. Payment terms.

For the initial or renewal order, Microsoft will invoice Enrolled Affiliate's Reseller in three equal annual installments. The first installment will be invoiced upon Microsoft's acceptance of this Enrollment and remaining installments will be invoiced on each subsequent Enrollment anniversary date. Subsequent orders are invoiced upon acceptance of the order and Enrolled Affiliate may elect to pay annually or upfront for Online Services and upfront for all other Licenses.

5. End of Enrollment term and termination.

a. General. At the Expiration Date, Enrolled Affiliate must immediately order and pay for Licenses for Products it has used but has not previously submitted an order, except as otherwise provided in this Enrollment.

b. Renewal option. At the Expiration Date of the initial term, Enrolled Affiliate can renew Products by renewing this Enrollment for one additional 36-month term or by signing a new Enrollment. Microsoft must receive a Renewal Form, Product Selection Form, and renewal order prior to or at the Expiration Date. Microsoft will not unreasonably reject any renewal.

Microsoft may make changes to this program that will make it necessary for Customer and its Enrolled Affiliates to enter into new agreements and Enrollments at renewal.

c. If Enrolled Affiliate elects not to renew.

(i) Software Assurance. If Enrolled Affiliate elects not to renew Software Assurance for any Product under its Enrollment, then Enrolled Affiliate will not be permitted to order Software Assurance later without first acquiring a new License with Software Assurance.

(ii) Online Services eligible for an Extended Term. For Online Services identified as eligible for an Extended Term in the Product Terms, the following options are available at the end of the Enrollment initial or renewal term.

1) Extended Term. Licenses for Online Services will automatically expire in accordance with the terms of the Enrollment. An extended term feature that allows Online Services to continue month-to-month ("Extended Term") is available. During the Extended Term, Online Services will be invoiced monthly at the then-current published price as of the Expiration Date plus a 3% administrative fee for up to one year. If Enrolled Affiliate wants an Extended Term, Enrolled Affiliate must submit a request to Microsoft at least 30 days prior to the Expiration Date.

2) Cancellation during Extended Term. At any time during the first year of the Extended Term, Enrolled Affiliate may terminate the Extended Term by submitting a notice of cancellation to Microsoft for each Online Service. Thereafter, either party may terminate the Extended Term by providing the other with a notice of cancellation for each Online Service. Cancellation will be effective at the end of the month following 30 days after Microsoft has received or issued the notice.

(iii) Subscription Licenses and Online Services not eligible for an Extended Term. If Enrolled Affiliate elects not to renew, the Licenses will be cancelled and will terminate as of the Expiration Date. Any associated media must be uninstalled and destroyed and Enrolled Affiliate's Enterprise must discontinue use. Microsoft may request written certification to verify compliance.

d. Termination for cause. Any termination for cause of this Enrollment will be subject to the "Termination for cause" section of the Agreement. In addition, it shall be a breach of this Enrollment if Enrolled Affiliate or any Affiliate in the Enterprise that uses Government Community Cloud Services fails to meet and maintain the conditions of membership in the definition of Community.

e. Early termination. Any early termination of this Enrollment will be subject to the "Early Termination" Section of the Enterprise Agreement.

For Subscription Licenses, in the event of a breach by Microsoft, or if Microsoft terminates an Online Service for regulatory reasons, Microsoft will issue Reseller a credit for any amount paid in advance for the period after termination.

6. Government Community Cloud.

a. Community requirements. If Enrolled Affiliate purchases Government Community Cloud Services, Enrolled Affiliate certifies that it is a member of the Community and agrees to use Government Community Cloud Services solely in its capacity as a member of the Community and, for eligible Government Community Cloud Services, for the benefit of end users that are members of the Community. Use of Government Community Cloud Services by an entity that is not a member of the Community or to provide services to non-Community members is strictly prohibited and could result in termination of Enrolled Affiliate's license(s) for Government Community Cloud Services without notice. Enrolled Affiliate acknowledges that only Community members may use Government Community Cloud Services.

b. All terms and conditions applicable to non-Government Community Cloud Services also apply

to their corresponding Government Community Cloud Services, except as otherwise noted in the Use Rights, Product Terms, and this Enrollment.

c. Enrolled Affiliate may not deploy or use Government Community Cloud Services and corresponding non-Government Community Cloud Services in the same domain.

d. **Use Rights for Government Community Cloud Services.** For Government Community Cloud Services, notwithstanding anything to the contrary in the Use Rights:

(i) Government Community Cloud Services will be offered only within the United States.

(ii) Additional European Terms, as set forth in the Use Rights, will not apply.

(iii) References to geographic areas in the Use Rights with respect to the location of Customer Data at rest, as set forth in the Use Rights, refer only to the United States.

Enrollment Details

1. Enrolled Affiliate's Enterprise.

a. Identify which Agency Affiliates are included in the Enterprise. (Required) Enrolled Affiliate's Enterprise must consist of entire offices, bureaus, agencies, departments or other entities of Enrolled Affiliate, not partial offices, bureaus, agencies, or departments, or other partial entities. Check only one box in this section. If no boxes are checked, Microsoft will deem the Enterprise to include the Enrolled Affiliate only. If more than one box is checked, Microsoft will deem the Enterprise to include the largest number of Affiliates:

☒ Enrolled Affiliate only

☐ Enrolled Affiliate and all Affiliates

☐ Enrolled Affiliate and the following Affiliate(s) (Only identify specific affiliates to be included if fewer than all Affiliates are to be included in the Enterprise):

☐ Enrolled Affiliate and all Affiliates, with following Affiliate(s) excluded:

b. Please indicate whether the Enrolled Affiliate's Enterprise will include all new Affiliates acquired after the start of this Enrollment: Exclude future Affiliates

2. Contact information.

Each party will notify the other in writing if any of the information in the following contact information page(s) changes. The asterisks (*) indicate required fields. By providing contact information, Enrolled Affiliate consents to its use for purposes of administering this Enrollment by Microsoft, its Affiliates, and other parties that help administer this Enrollment. The personal information provided in connection with this Enrollment will be used and protected in accordance with the privacy statement available at https://www.microsoft.com/licensing/servicecenter.

a. **Primary contact.** This contact is the primary contact for the Enrollment from within Enrolled Affiliate's Enterprise. This contact is also an Online Administrator for the Volume Licensing Service Center and may grant online access to others. The primary contact will be the default contact for all purposes unless separate contacts are identified for specific purposes

Name of entity (must be legal entity name)* City of Oregon City
Contact name* First Michael **Last** Dobaj
Contact email address* mdobaj@orcity.org
Street address* 625 Center Street
City* Oregon

State* OR
Postal code* 97045-2253
(Please provide the zip + 4, e.g. xxxxx-xxxx)
Country* US
Phone* 503-657-0891
Tax ID
** indicates required fields*

b. Notices contact and Online Administrator. This contact (1) receives the contractual notices, (2) is the Online Administrator for the Volume Licensing Service Center and may grant online access to others, and (3) is authorized to order Reserved Licenses for eligible Online Servies, including adding or reassigning Licenses and stepping-up prior to a true-up order.

☒ Same as primary contact (default if no information is provided below, even if the box is not checked).

Contact name* First Last
Contact email address*
Street address*
City*
State*
Postal code* -
(Please provide the zip + 4, e.g. xxxxx-xxxx)
Country*
Phone*
Language preference. Choose the language for notices. English
☐ This contact is a third party (not the Enrolled Affiliate). Warning: This contact receives personally identifiable information of the Customer and its Affiliates.
** indicates required fields*

c. Online Services Manager. This contact is authorized to manage the Online Services ordered under the Enrollment and (for applicable Online Services) to add or reassign Licenses and step-up prior to a true-up order.

☒ Same as notices contact and Online Administrator (default if no information is provided below, even if box is not checked)

Contact name*: First Last
Contact email address*
Phone*
☐ This contact is from a third party organization (not the entity). Warning: This contact receives personally identifiable information of the entity.
** indicates required fields*

d. Reseller information. Reseller contact for this Enrollment is:

Reseller company name* Dell Inc.
Street address (PO boxes will not be accepted)* One Dell Way
City* Round Rock
State* TX
Postal code* 78682-7000
Country* US
Contact name* Gov Admin
Phone* 847-765-3700
Contact email address* US_MS_Govt_EA_Select@Dell.com
** indicates required fields*

By signing below, the Reseller identified above confirms that all information provided in this Enrollment is correct.

Signature*_____

Printed name*
Printed title*
Date*

** indicates required fields*

Changing a Reseller. If Microsoft or the Reseller chooses to discontinue doing business with each other, Enrolled Affiliate must choose a replacement Reseller. If Enrolled Affiliate or the Reseller intends to terminate their relationship, the initiating party must notify Microsoft and the other party using a form provided by Microsoft at least 90 days prior to the date on which the change is to take effect.

e. If Enrolled Affiliate requires a separate contact for any of the following, attach the Supplemental Contact Information form. *Otherwise, the notices contact and Online Administrator remains the default.*

(i) Additional notices contact
(ii) Software Assurance manager
(iii) Subscriptions manager
(iv) Customer Support Manager (CSM) contact

3. Financing elections.

Is a purchase under this Enrollment being financed through MS Financing? ☐ Yes, ☒ No.

If a purchase under this Enrollment is financed through MS Financing, and Enrolled Affiliate chooses not to finance any associated taxes, it must pay these taxes directly to Microsoft.

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: Pete Walter, Planning Manager

SUBJECT:

Removal of Heritage Tree Designation for Dead Austrian Pine Tree at Swimming Pool, 1211 Jackson Street

STAFF RECOMMENDATION:

Staff recommends that the City Commission approve the removal and de-designation of the Austrian Pine heritage tree at the Oregon City Swimming Pool, 1211 Jackson Street

EXECUTIVE SUMMARY:

A designated heritage tree has been in decline since 2021 and is now mostly dead, and poses a potential hazard. The Parks Department wishes to remove the tree. Pursuant to OCMC 12.32, the Natural Resources Committee and City Commission shall be notified of the pending de-designation prior to the removal.

BACKGROUND:

The heritage tree is a 31.5” DBH Austrian Pine (*Pinus nigra*) growing on city property at the Oregon City Swimming Pool at 1211 Jackson Street. The tree is located on the south side of the property abutting the patio area. The tree was nominated for heritage status and was approved by the City Commission on June 15, 2022.

Parks staff submitted a Type I Minor Site Plan and Design Review application with Tree Removal Addendum and a City Staff Application for Removal of Significant Trees. Parks Maintenance Manager Jon Waverly confirmed that the tree is indeed dead and that there are no other options but removal for safety reasons including proximity to the building and wading pool.

Planning concurs that the Austrian Pine tree appears to be fully dead with the remaining foliage dry and brown. Closer inspection of the tree indicates fungal fruiting bodies on both trunks, a clear indicator of advanced internal decay. Small dead branches are already falling from the tree. The tree has a double leader and included bark in the crotch, with one of the trunks leaning in the direction of the swimming pool fence, picnic

tables, building and wading pool. At some point, given a significant weather event, it is possible that the tree could fail and some portion of the tree fall in the direction of these targets with a high likelihood of impact. The consequences of failure are significant, and could result in substantial personal injury, moderate to high-value property damage and considerable disruption of important activities.

Per OCMC 12.32.080.B. *an application to remove a heritage tree or stand shall demonstrate that the burden imposed on the property owner by the continued presence of the tree outweighs the public benefit provided by the tree. For the purposes of making this determination, the following tree impacts shall not be considered unreasonable burdens on the property owner, or if appropriate, the city:*

1.View obstruction;

2.Routine pruning, leaf raking and other maintenance activities; and

3.Infrastructure impacts or tree hazards that can be controlled or avoided by appropriate pruning or maintenance.

12.32.100 - Removal of heritage tree or stand designation.

A designated heritage tree or stand may have that designation removed if the tree or stand dies or is removed pursuant to this chapter. The natural resources committee, parks and recreation advisory committee, and city commission shall be notified of the pending de-designation prior to the removal as applicable. If removed from private property, the city shall record a document extinguishing the covenant.

It is staff's opinion that the burden imposed on the property owner by the continued presence of the tree outweighs the public benefit provided by the tree. At this point, the tree is a moderate hazard and the hazards cannot be avoided or controlled through appropriate pruning or maintenance.

The Natural Resources Committee will consider the de-designation of the tree at their regular meeting on 4.12.2023 and staff will pass along the committee's recommendation to the City Commission.

OPTIONS:

1. Remove heritage tree designation for the Austrian Pine Tree.
2. Do not remove heritage tree designation, provide further direction to staff.

BUDGET IMPACT:

Amount: $ NA

FY(s): TBD

Funding Source(s): TBD

695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

City Staff Application for Removal of Significant Public Trees

Please complete this packet and attach all required application materials. If any section of the application form is incomplete, the application will be returned.

This section to be completed by staff only:

Reviewed By: Molly Gaughran Date: 3/21/23 Associated Permit #: TREE-23-00015

X Tree Removal Subject to Public Tree Removal Policy ❑ Tree Removal Exempt from Public Tree Removal Policy

Pursuant to City Commission Resolution No. 20-33 (Effective 12/04/2020)

Please use this form is for tree removal on City-owned property, Urban Renewal owned property, City-initiated tree removal within the public right-of-way to determine whether or not the City's public tree removal policy applies to the proposed tree removal. The purpose of this review is to reduce unnecessary tree removal by the City and provide public notification and other best practices when such removal occurs.

Applicant Name: Kyle Christoph Department: Facilities

Phone: 971-990-3109 Email: kchristoph@orcity.org

Address or Map and Tax Lot: 1211 Jackson St

1. Permits Required

Depending on the location of the trees proposed to be removed, additional permits are required. Please complete and attach the additional forms required.

Location of Tree(s) Proposed to be Removed:

X City-owned property or Urban Renewal owned property
In addition to this form, please complete and attach a Type I Site Plan and Design Review Main Application, and Addendum 4b for Tree Removal.

❑ Public Right-of-Way
In addition to this form, please complete and attach a Street Tree Removal permit application form.

Staff Only
Have required permit applications been submitted?
X Yes ❑ No

2. Applicability of Public Tree Removal Policy

Please identify the number of trees being removed which meet the size requirements listed. If the trees being removed are smaller than the sizes listed in the table below, please continue to the Section 3 (Exemptions).

Tree Species	Size (D.B.H)*	# of Trees Being Removed
Oregon White Oak (Quercus garrayana)	*8"+*	
Douglas Fir (Pseudotsuga menziesii)	*18"+*	
Western Red Cedar (Thuja plicata)	*12"+*	
Ponderosa Pine (Pinus ponderosa)	*12"+*	
Western Yew (Taxus brevifolia)	*6"+*	
Pacific Dogwood (Cornus nuttallii)	*5"+*	
Coastal Redwood (Sequoia sempervirens)	*12"+*	
Giant Sequoia (Sequoiadendron giganteum)	*12"+*	
Pacific Madrone (Arbutus menziesii)	*5"+*	
Other deciduous tree species	*20"+*	
Other evergreen trees	*18"+*	1

**D.B.H. = Diameter at Breast Height = 4.5 feet above ground.*

3. Exemptions

Please identify if any of the following exemptions apply to the proposed tree removal.

- ❑ The trees are smaller than the minimum D.B.H. identified in the table above.
- ❑ The trees are within a habitat restoration area. Please note the habitat restoration project must have been approved by the Planning Division through the appropriate land use process.
- ❑ The trees are within or abutting water quality facilities.
- ❑ The trees are on the Oregon City Nuisance Plant List or otherwise classified as invasive or problem species in the region.
- ❑ The trees are imminent hazard trees. Imminent hazard trees, as defined in OCMC 17.04.1370 may be removed without notification before a permit is obtained due to the necessity to respond to the hazard and restore public safety as soon as possible. Examples include if the tree has fallen across the roadway or if it is leaning significantly due to a heavy windstorm and likely to fall within the next 72 hours, or when a tree is damaged by a vehicle collision. A determination of imminent hazard is made in the field by the City of Oregon City Public Works, or emergency personnel, a forester, or a certified arborist. **Permits shall be obtained after the imminent hazard has been removed and any applicable replacement requirements shall be followed.** The responding personnel shall provide details of the tree species, size and condition to the extent practicable. Photos and documentation of the hazardous conditions shall be provided with the permit application for tree removal to verify the tree was hazardous, but arborist reports are not required.

17.04.1370 - Tree, imminent hazard.
"Imminent hazard tree" means a hazardous tree as defined in OCMC 12.32.020, all or more than thirty percent of which has already fallen or is estimated to fall within seventy-two hours into the public right-of-way or onto a target that cannot be protected, restricted, moved, or removed.

If the proposed tree removal is exempt from the public tree removal policy in accordance with one of the exemptions above, you have completed the worksheet. If the proposed tree removal is not exempt, please proceed to Consideration of Alternatives to Tree Removal.

Staff Only

Is the project exempt from the public tree removal policy?

Yes ☐ No ☒ Initial MG

If the project is not exempt, please continue the form.

4. Consideration of Alternatives to Tree Removal: Initial Documentation

The department requesting removal shall document the tree location, size, and species (if known), the reason for the proposed removal, and alternatives considered in a written justification memo. The memorandum must contain an analysis of alternatives to removal, which may include one or more of the following methods:

- Root pruning
- Canopy pruning
- Changing the location of existing or proposed structures and public utilities
- Other alternatives as applicable.

Following analysis of alternatives the memo shall include a recommended course of action, which takes into account the alternatives considered and whether the alternative is / is not feasible, and why.

Please attach the alternatives analysis in a separate memo or complete the following:

Tree Location (Include Map): 1211 Jackson St, on 12th street

Size: DBH 31.5" Est spread of 40' and height 40'

Species: Austrian Pine

Reason for Removal: Currently Deceased.

Alternatives to Removal and Rough Cost Estimate:

Alternative #1: _____

Alternative #2: _____

Alternative #3: _____

Conclusions/Recommended Course of Action: Tree removal and stump grinding by Mr Tree, $2950.

Name of Staff who Completed Analysis: Jon Waverly

5. Consideration of Alternatives to Tree Removal: Third Party Review

The above will be reviewed by a department manager, who will send the memo to a third party (an arborist or a staff assessment team) for review. The department may choose to send the justification memo to either:

- Option #1: A Certified Arborist (Required for Trees over 40" D.B.H.)
- Option #2: Staff Assessment (A minimum of 2 Public Works/Parks staff members and 1 from Planning)

Please identify all of the third-party reviewers, who have reviewed the justification memo, and submit their written conclusions.

☐ Certified Arborist Name: _____ Certification #: _____

☒ Staff Assessment Team

Name Jon Waverly Department Parks and Recreation

Name Pete Walter Department Com Dev/Planning

Name Molly Gaughran Department Com Dev/Planning

Has the third-party reviewers' written conclusion memo been submitted? ☒ Yes ☐ No

Staff Only
Have all required memos been submitted? ☒ Yes ☐ No Initial MG

6. Public Notice

The following public notices are required and will be prepared by Planning staff:

- Physical Notice

A physical notice is required to be posted on the tree proposed for removal for a minimum of 14 calendar days. This period is intended to provide an opportunity for the public to contact the applicant with questions and comments about the proposed tree removal. Notices shall be provided by the Planning Division on 8.5 X 11 laminated paper with the words "NOTICE OF PROPOSED TREE REMOVAL" in bold, 48-point font and the website where the public may download the permits, arborist reports and associated documentation. Notices shall be tied to the tree with twine or wire. No screws or nails shall be used. The notice will be created by the Planning Division, but will be placed and monitored by the department proposing removal.

- Email Transmittal

Staff will send email transmittal to affected departments and agencies requesting comment on the proposed tree removal.

- City Manager Review

If there remain unresolved questions or concerns regarding the proposed tree removal after the public notice, the removal shall be referred to the City Manager for further review. The City Manager may decide to move forward with the tree removal or cease the tree removal process.

Staff Only
Date Notice Posted on Website: 3/22/2023
Affidavit Submitted: ☒ Yes ☐ No
Email Transmittal Sent Out: ☒ Yes ☐ No
Comment Period Deadline: 4/6/2023
City Manager Review Required? ☐ Yes ☐ No

7. Additional Requirements

Reuse/Repurposing of Wood

Trees proposed for removal which are subject to this policy, free from infestation, and 25 inches D.B.H. or greater, shall be repurposed for use by the City and/or public if feasible. Depending on the quality of the wood, it may be utilized for environmental enhancement, furniture or crafts. The Natural Resources Committee recommends that in natural areas and next to streams, leaving large woody debris in place may help to improve fish and wildlife habitat, and that the use of wood for firewood should be allowed only if the wood cannot be repurposed any other way (e.g. cottonwood).

Does the proposed tree removal include removal of trees greater than 25 inches DBH which are free from infestation? ❑ Yes ❑ No

Is reuse/repurposing of wood proposed? x Yes ❑ No

If yes, please explain how the wood would be reused or repurposed: _____
Portions of trunk have been requested by community members for artwork.

Staff Only
Reuse of Wood Approved? ☒ Yes ☐ No Initial MG

City Commission Hearing

Trees greater than 40" D.B.H. shall be placed on a City Commission consent agenda and notification will be sent to the Natural Resources Committee, Parks and Recreation Committee, and the Transportation Advisory Committee. The City Commission may decide to move forward with the tree removal or cease the tree removal process.

Does the proposed tree removal include removal of trees greater than 40 inches DBH? ❑ Yes x No

Staff Only
City Commission hearing required? ☐ Yes ☒ No Initial MG

Large Tree Mitigation

Trees proposed for removal that are 50 inches or greater D.B.H. shall be mitigated with tree plantings within the city limits. No fee-in-lieu is allowed.

Does the proposed tree removal include removal of trees greater than 50 inches DBH? ❑ Yes x No

Are all mitigation trees proposed to be planted within city limits? Yes ❑ No

Is fee-in-lieu of planting mitigation trees proposed? ❑ Yes x No

Staff Only

Approved? [X] Yes [ ] No Initial MG

OREGON CITY
Community Development
698 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

Type I Site Plan and Design Review

Addendum 4b: Landscaping – Tree Removal

Changes to landscaping must be in compliance with Oregon City Municipal Code Section 17.62.050.A.1, 17.62.050.A.9 and 17.52.060.

USE THIS ADDENDUM ONLY IF TREE REMOVAL IS PROPOSED, FOR ALL OTHER LANDSCAPING CHANGES PLEASE USE ADDENDUM 4a.

On-Site Tree Removal

Tree removal must be in compliance with Oregon City Municipal Code Section 17.41.060.

Does the proposal include removal of on-site trees? If so, please complete this section. If not, please proceed to the next section. ☒ Yes ☐ No

Please note, onsite trees do not include required parking lot trees. If required parking lot trees are proposed to be removed, please complete Addendum 4a.

Describe the proposed tree removal, including size, species, and reason for removal.

AUSTRIAN PINE, SPREAD 40' - HEIGHT 40'
DBH 31.5" - TREE IS DEAD.

Is mitigation (replanting) required?

☐ Yes

☐ No, the tree is an invasive species: _____

☐ No, the tree is dead, diseased, dying, or hazardous and I have an arborist letter

☒ No, the tree is dead, diseased, dying, or hazardous and the condition of the tree can be verified by staff (attach photos)

If mitigation is required, please identify the option for tree mitigation:

☐ Replacement - All replacement trees shall be protected by a permanent restrictive covenant or easement approved in form by the city.

Size of tree removed (DBH*)	Number of Trees Proposed to be Removed	# of Trees Replanted for Each Tree Removed *If removed tree is **within** construction area*	# of Trees Replanted for Each Tree Removed *If removed tree is **outside of** construction area*	Number of Mitigation Trees Required
6 to 12"		1	3	
13 to 18"		2	6	

Size of tree removed (DBH*)	Number of Trees Proposed to be Removed	# of Trees Replanted for Each Tree Removed *If removed tree is **within** construction area*	# of Trees Replanted for Each Tree Removed *If removed tree is **outside of** construction area*	Number of Mitigation Trees Required
19 to 24"		3	9	
25 to 30"		4	12	
31 and over"		5	15	

Total Mitigation Trees Required_____

*DBH means inches of trunk diameter, measured at 4 ½ feet above ground level.

Size. The mitigation trees shall be a minimum of 2" in caliper or a 6' conifer.
Size Proposed: _____

Species. The species shall be listed on the City's Native Tree List, Street Tree List or approved by a certified arborist.

❑OC Native Tree List ❑OC Street Tree List ❑Approved by a certified arborist

Species Proposed*: _____

*Removal of white oak species requires replacement with the same species.

❑ Cash in Lieu.

Number of Trees Proposed to Use the Cash in Lieu: _____

_____ x fee-in-lieu:_____ = _____ Total Amount Due

Attach a tree mitigation plan showing the proposed location of mitigation trees, species, and proposed planting date.

Mitigation plans must be prepared by a certified arborist, horticulturalist, forester, or other environmental professional, though tree inventories for the purposes of mitigation calculations may be prepared by a licensed surveyor. Please provide the information of the qualified professional who completed the tree mitigation plan.

Name _____ Company _____

Phone Number _____ Email Address _____

❑Certified Arborist ❑Horticulturalist

❑Forester ❑Other Environmental Professional _____

Certification Number (if applicable) _____

Staff Only

Standards met? ❑ Yes ❑ No X Not Applicable Initial MG

Molly Gaughran

From: Pete Walter
Sent: Wednesday, March 22, 2023 4:05 PM
To: Molly Gaughran; Jonathan Waverly
Subject: RE: TREE-23-00015 Tree Removal for OC Swimming Pool Staff Assessment

The Austrian Pine tree appears to be fully dead with the remaining foliage dry and brown. Even from a distance in this photo, the bark can be seen sloughing at the base of the tree, indicating that the cambium of the tree is no longer alive and capable of transporting water and nutrients. The tree clearly has a double leader with included bark at the crotch at approximately 6-8 feet from the ground, which is an obvious potential failure point. It is unclear whether there is internal decay based on the photo, however it is very likely that there is a fungal infection as well.

Pete Walter, Planning Manager
Certified Arborist PN-9393A

From: Molly Gaughran <mgaughran@orcity.org>
Sent: Wednesday, March 22, 2023 12:59 PM
To: Pete Walter <pwalter@orcity.org>; Molly Gaughran <mgaughran@orcity.org>; Jonathan Waverly <jwaverly@orcity.org>
Subject: TREE-23-00015 Tree Removal for OC Swimming Pool Staff Assessment

Hi all,

Please send your written staff assessment comments regarding the following memo for the proposed OC Swimming Pool evergreen tree removal:

C*urrently Deceased Austrian Pine, spread of 40-feet, height of 40-feet, and DBH of 31.5-inches.*

Molly Gaughran

From: Jonathan Waverly
Sent: Wednesday, March 22, 2023 3:23 PM
To: Molly Gaughran; Pete Walter
Subject: RE: TREE-23-00015 Tree Removal for OC Swimming Pool Staff Assessment

Staff Report
3/22/2023
Oregon City Swimming Pool-Austrian Pine
1211 Jackson St.

I can confirm that the tree is indeed dead and that there are no other options but removal for safety reasons and proximity to the building and wading pool.

Jonathan Waverly-Parks and Cemetery Maintenance Manager

Please let me know if there are any other additional questions.

From: Molly Gaughran <mgaughran@orcity.org>
Sent: Wednesday, March 22, 2023 12:59 PM
To: Pete Walter <pwalter@orcity.org>; Molly Gaughran <mgaughran@orcity.org>; Jonathan Waverly <jwaverly@orcity.org>
Subject: TREE-23-00015 Tree Removal for OC Swimming Pool Staff Assessment

Hi all,

Please send your written staff assessment comments regarding the following memo for the proposed OC Swimming Pool evergreen tree removal:

C*urrently Deceased Austrian Pine, spread of 40-feet, height of 40-feet, and DBH of 31.5-inches.*

City-Initiated Tree Removal: 1211 Jackson St

Staff Assessment of Memo

The photographic evidence shows that the foliage and bark are in a poor state and appears to validate that the Austrian Pine is dead with little to no chance of recovery. Furthermore, due to the proximity to the building, I agree that alternatives to tree removal are not recommended.

Molly Gaughran
Oregon City Planning Division

205
OREGON CITY

SPEED
25

STOP

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: Captain Shaun Davis

SUBJECT:

Resolution 23-07, Adopting New Parking Meter Fees in Downtown Zones

STAFF RECOMMENDATION:

Approve the adoption of Resolution 23-07 establishing new parking meter rates in zones as shown on the map labeled Downtown Visitor Parking Map.

EXECUTIVE SUMMARY:

At the January 18, 2023, Commission Meeting, the City Commission recommended that all parking meter rates in the downtown area be standardized to $1.00 per hour. Pursuant to Oregon City Municipal Code 10.16.170, the City Commission through resolution can establish appropriate parking meter fees. This resolution will codify the City Commission's recommendation to standardize parking rates.

By approving the adoption of Resolution 23-07, City Commission will be establishing new parking meter fees in zones as shown on the map labeled Downtown Visitor Parking Map.

BACKGROUND:

On January 18, 2023, the City Commission was presented and accepted the Downtown Oregon City Parking Study which provided several recommendations to address the availability of private parking facilities, the impact on area businesses, the impact on neighboring residential areas, the demand for employee and public parking and other appropriate factors.

Currently, there are two zones, (Zone 1 and Zone 2) within the Downtown Visitor Parking Map. Zone 1 is $1.00/hr and Zone 2 is $0.50/hr.

After discussion, the City Commission recommended Code Enforcement staff standardize parking meter rates in all zones within the downtown district to $1.00 per hour. Pursuant to Oregon City Municipal Code 10.16.170, the City Commission is

authorized to establish appropriate parking permit and meter fees and desires to do so, based on the recommendations of the Downtown Oregon City Parking Study.

By approving Resolution 23-07, City Commission will be establishing new parking meter rates in zones as shown on the map labeled Downtown Visitor Parking Map.

Staff recommends approval of the adoption of Resolution 23-07.

OPTIONS:

1. Approve Resolution 23-07
2. Request changes to Resolution 23-07
3. Deny Resolution 23-07

BUDGET IMPACT:

Amount:	None
FY(s):	N/A
Funding Source(s):	N/A

RESOLUTION NO. 23-07

ADOPTING NEW PARKING METER RATES

WHEREAS, Oregon City has adopted ordinance provisions regulating parking in certain areas of the city and authorizing the commission to set fees for parking meters and for parking permits in certain areas; and

WHEREAS, the City conducted a study on parking issues in the downtown area, entitled the Downtown Oregon City Parking Study that involved a variety of stakeholders and addressed a variety of issues, and

WHEREAS, The Downtown Oregon City Parking Study was accepted by the Oregon City Commission on January 18, 2023, and provided several recommendations to address the availability of private parking facilities, the impact on area businesses, the impact on neighboring residential areas, the demand for employee and public parking and other appropriate factors; and

WHEREAS, pursuant to OCMC 10.16.170, the City Commission is authorized to establish appropriate parking permit and meter fees and desires to do so, based on the recommendations of the Downtown Oregon City Parking Study,

NOW, THEREFORE, OREGON CITY RESOLVES AS FOLLOWS:

Section 1. The City hereby establishes the following fees for parking at metered spaces or spaces controlled by pay stations in the zones as shown on the map labelled “Downtown Visitor Parking Map,” which is attached as Exhibit A to this resolution:

Zone 1
100 cents for 60 minutes;
50 cents for 30 minutes;
25 cents for 15 minutes;
10 cents for 6 minutes;
5 cents for 3 minutes.

Zone 2
100 cents for 60 minutes;
50 cents for 30 minutes;
25 cents for 15 minutes;
10 cents for 6 minutes;
5 cents for 3 minutes.

Approved and adopted at a regular meeting of the City Commission held on the 19th day of April 2023.

Denyse McGriff, Mayor

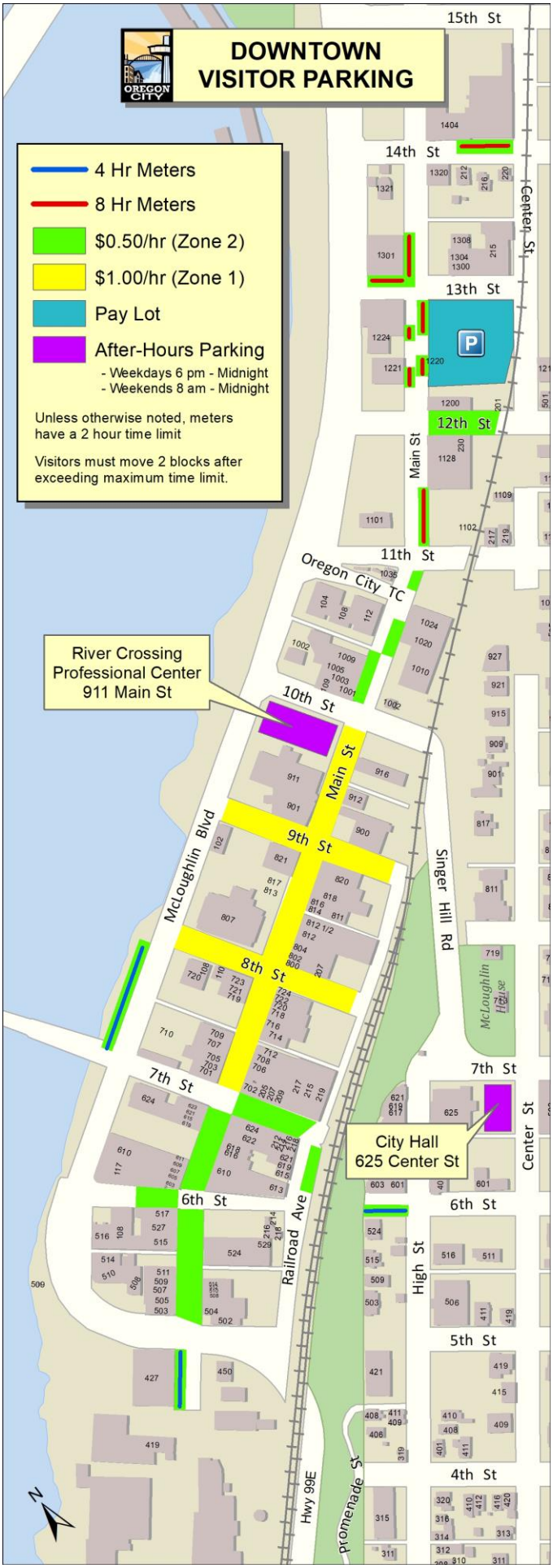
Attested to this 19th day of April 2023.

Jakob Wiley, City Recorder

Approved as to legal sufficiency:

City Attorney

Exhibit A – Downtown Visitor Parking Map


DOWNTOWN
VISITOR PARKING
OREGON CITY
4 Hr Meters
8 Hr Meters
$0.50/hr (Zone 2)
$1.00/hr (Zone 1)
Pay Lot
After-Hours Parking
- Weekdays 6 pm - Midnight
- Weekends 8 am - Midnight
Unless otherwise noted, meters have a 2 hour time limit
Visitors must move 2 blocks after exceeding maximum time limit.
River Crossing Professional Center 911 Main St
City Hall 625 Center St
15th St
14th St
13th St
12th St
11th St
10th St
9th St
8th St
7th St
6th St
5th St
4th St
Oregon City TC
Main St
McLoughlin Blvd
Singer Hill Rd
Center St
High St
Railroad Ave
Hwy 99E
Promenade St
McLoughlin House
N

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: Jude Thaddaeus, Assistant Planner

SUBJECT:

First Reading of Ordinance 23-1004, the 2022-23 Street Tree Minor Code Amendments

STAFF RECOMMENDATION:

Staff recommends the City Commission review the attached documents and approve Ordinance 23-1004 for the 2022-23 Street Tree Minor Code Amendment.

EXECUTIVE SUMMARY:

At the April 5, 2023 City Commission meeting to review the proposed minor street tree code amendments to Chapter 12.08 and 12.32, the Commission consented to Planning staff returning with an Ordinance to adopt the 2022-23 Street Tree Minor Code Amendments. These amendments:

1. Exempt street tree removals from planter strips 3 feet wide or less from the replanting or fee in lieu requirements.
2. List the decision-maker for street tree removal applications as the “City Manager or designee,” for clarity and consistency.
3. Clarify and make consistent the use of the term “Certified Arborist,” as defined in OCMC 17.04.082, throughout Chapter 12.
4. Remove the County-level deed recordation requirement for any street trees designated in private front yards.
5. Amend the replanting alternatives, making the fee in lieu option a last resort.
6. Clarify replacement street tree size requirements for removed dead, diseased, and hazardous street trees.

BACKGROUND:

Replanting Exceptions for Planter Strips 3 Feet Wide or Less

The Natural Resource Committee recommended changes to the Oregon City Municipal Code and permitting process for street trees in planting strips 3 feet wide or less. Property owners with street trees in planting strips 3 feet wide or less would no longer

be required to replace them or pay a fee in lieu of replacement under the new suggested Code. Property owners with such planting strips, but who wish to replace their street trees, can still select from the Street Tree Species List that was adopted by the City Commission on August 17, 2022. Another minor code update will clarify the minimum caliper size required for replacement of trees deemed diseased or hazardous by a Certified Arborist Report.

In August 2022, the City Commission gave formal direction to move forward with minor code amendments to Chapter 12.08.035 Street Tree Removal and Replacement, based on NRC's recommendation. At that time, staff committed to public participation that included asking the public for input and presenting these amendments to City Boards, Committees, and Commissions. The public participation process is now complete.

On April 5, 2023, the City Commission directed, under consent, that Planning Division staff should return with an ordinance adopting this exception. The amended code language is attached, for review (Exhibit A).

Decisionmaker

Currently the code shows inconsistencies in naming the party ultimately responsible for street tree removal application decisions. In one section, "the city" is listed as the decisionmaker, while in others, that person is the "community development director."

The City Commission consented to the staff-recommended change of designation in both cases to "City Manager or designee." This change reflects best practices by preventing the need for code changes should City departments or position titles change in the future. The amended code language is attached, for review (Exhibit A).

Certified Arborist

The code contains various terms for arborist that are not consistent, such as "qualified arborist", "registered arborist", and more commonly "certified arborist", which is the prevailing definition that staff uses per OCMC 17.04.082 - *Arborist, certified*.

> *"Certified Arborist" means a professional tree service provider whose certification is regulated and current and maintained with the International Society of Arboriculture (ISA). To use the term "Certified Arborist," an individual must have three years of experience and have passed an ISA certification exam that tests a variety of tree care knowledge*.

Despite minor inconsistencies between terms in the code, staff relies on the definition above as the prevailing standard, whether in the Street Tree code chapter or elsewhere. Therefore, the draft language attached shows the replacement of other terms with *certified arborist*.

As directed by the City Commission, this change has been made to the proposed new code. The code revisions for Certified Arborist instances are shown in Exhibits A, B, and C.

Covenant Requirement for Street Tree Replacement on Private Property

Currently the code requires that property owners who remove a street tree and opt to replant a replacement tree on their private property must record a covenant with the County that designates the replaced tree as a public street tree within ten feet of the public right-of-way. This option has historically been used when there is insufficient space to replant an appropriate street tree. The covenant has proven expensive to record, due to the County's Recorder's office's fee schedule. Furthermore, the administration of the covenant is difficult and ineffective.

As directed by the City Commission, the County deed recordation requirement has been removed from the proposed Code, while retaining the option for applicants to replant new trees on their private properties within 10 feet of the right of way where spacing requirements might prohibit them in the right of way. This policy emphasizes replanting street trees over the fee in lieu option by streamlining the process by which an applicant can replant in an area that would provide similar property and community benefit as the tree that was removed.

The amended code language is attached, for review (Exhibit A).

Street Tree Fee-in-Lieu of Replanting – a Last Resort

The City Commission directed Planning staff to revise the street tree code to make the fee-in-lieu of replanting option a last resort. On April 5, 2023, Planning staff returned with revised language that requires the applicant to prove the following, to the City Manager or designee's satisfaction, in order to be eligible for a fee in lieu:

1. Insufficient replanting space is available in the planter strip, and
2. Insufficient replanting space in a right-of-way abutting another property, with property owner approval, is available, and
3. Replanting space and authorization on public property is unavailable, and
4. Replanting space in the front yard within 10 feet of the right of way is unavailable.

The City Commission consented on April 5, 2023 to Planning Division staff returning with this code in Ordinance form. The amended code language is attached, for review (Exhibit A), and is referenced in Ordinance 23-1004.

Other Minor Code Amendments

Some time ago, Planning Division staff discovered minor code ambiguities regarding required replacement street tree sizes for dead, diseased, and hazardous street trees. Staff proposed the same replacement tree caliper requirement as already listed for mitigation trees, (i.e., 1.5 in caliper measured 6 inches above the root crown) and added "dead" to the section about diseased and hazardous trees in order to be consistent with the language shown in Table 12.08.035.

The City Commission consented on April 5, 2023 to Planning Division staff returning with this code in Ordinance form. The amended code language is attached, for review (Exhibit A), and is referenced in Ordinance 23-1004.

Raising the Fee in Lieu of Replanting

The City Commission expressed concerns about the current fee-in-lieu of planting that is adopted in the fee schedule as being too low. This fee reflects the cost of purchasing, transporting and planting a typical 1.5" caliper tree. The fee is readopted yearly and is pegged to the Construction Price Index along with other development fees. Staff researched fees charged in-lieu of planting by various cities through the Portland metro area. Oregon City's 2023 fee is $391 per tree is roughly in the mid-range of the cities reviewed.

City	Fee-in-Lieu of Planting
Sherwood	$ 204.00
Tualatin	$ 225.00
Canby	$ 250.00
Happy Valley	$ 250.00
West Linn	$ 300.00
Tualatin	$ 325.00
Forest Grove	$ 389.00
Oregon City	**$ 391.00**
Portland	$ 450.00
Sandy	$ 500.00
Gresham	$ 600.00
Milwaukie	$ 675.00
Tigard	$ 686.00
Beaverton	$ 800.00

Also, Friends of Trees' standard estimate for the cost to transport, plant, and maintain a 1.5" caliper tree for two years is $400.00.

On April 5, 2023, the City Commission expressed interest in raising the fee-in-lieu to match the $500 fee that the City of Sandy charges. This fee revision will be included in a Resolution to update the Planning Fee Schedule, which is intended to be presented by Planning Division staff at the May 3, 2023 City Commission meeting.

Pollinator Gardens

As discussed in the April 5, 2023 City Commission meeting, the NRC recommends providing guidance and information on the city website and other media rather than including code language pertaining to pollinator gardens in the proposed street tree code amendments. The Natural Resources Commission supports the City in promoting and providing guidance to homeowners and businesses who would like to establish

pollinator-friendly plantings in the public right-of-way. NRC made the following recommendations:

- Pollinator-friendly plantings within constrained planting areas such as planter strips that are narrower than three feet should be encouraged, and are a good alternative to planting trees in these areas
- Plantings that exceed three and half feet tall should be avoided where they may obstruct clear vision at street intersections and driveways.
- The city should provide guidance regarding pollinator gardens on the city website which would include:
    - Useful hyperlinks to additional pollinator conservation information and programs such as the Xerces Society for Invertebrate Conservation, Bee City USA, Audubon Society Backyard Habitat Certification Program, etc.
        - https://xerces.org/
        - https://beecityusa.org/
        - https://audubonportland.org/get-involved/backyard-habitat-certification-program/
        - https://extension.oregonstate.edu/gardening/pollinators
        - And many more…!
    - Proper maintenance of pollinator gardens, such as when to prune and thin plantings, and when to leave dried plant stalks and seedpods alone; so as to maximize habitat value
    - Plantings should include a diversity of plants that will provide seasonal habitat and food sources throughout of the year
    - Plants may be recommended that will grow lower to the ground will not create sight obstruction problems when needed
    - No nuisance plant species

Planning Division staff will create public information material (e.g., brochures, webpages, eTrail and Trail News articles) about the benefits of pollinator gardens and best practices in terms of creating and maintaining them in planter strips in Oregon City.

Sidewalk obstructions and lines of sight are already regulated in the city code (OCMC 8.08 – Nuisances, 12.04 – Streets, Sidewalks and Public Places, and 10.32 – Traffic Sight Obstructions) and any violations can be addressed through the city's adopted code enforcement process. Weeds and nuisance plants and vegetation are similarly defined and regulated. These items will also be noted in the public information material concerning pollinator gardens in Oregon City.

Additional Information

Before 2001, many subdivisions in Oregon City were developed with street tree planting strips that were too narrow for the trees planted in them. In many cases, these trees' roots required more than their narrow strips - often 3 feet wide or less - to grow and succeed. As a result, many street trees began to die prematurely or grow hazardous as they matured. Sometimes their roots buckled the sidewalk nearby. This created mobility

hazards for sidewalk users, particularly for people with disabilities. It also required property owners to pay significant costs to repair their sidewalks.

In 2001, Oregon City amended to the street standards to include planter strips 4.5 feet wide or more. In 2013, the Commission passed Resolution 13-27 adopting a revised street tree list to remove certain trees and provide further options for narrower strips.

Oregon City's Street Tree Removal and Replacement Permit process has also grown to accommodate people with street trees in these kinds of circumstances. It currently requires one-for-one removal and replacement when trees are deemed dead, diseased, hazardous, or buckle the sidewalk.

Last June, the Natural Resources Committee recommended that the City Commission consider changing the Street Tree Code to no longer require property owners to replace - or pay a fee-in-lieu - street trees removed from planting strips 3 feet wide or less.

In September, the Community Development Department published a webpage informing the public about the proposed code change and providing a way to register public comment on the proposal. The project has also been announced in e-Trail News and Trail News articles since then.

In November, the Planning Division presented the Street Tree Minor Code Amendment to the Citizen Involvement Committee, Natural Resource Committee, and Planning Commission for their review and feedback.

The Citizen Involvement Committee’s main concerns regarded sidewalk infrastructure and how street tree removal permits are processed more generally.

The Natural Resource Committee recommended that Planning staff promote the preferred option to replanting an appropriate species according to the new adopted list. The NRC also suggested allowing pollinator gardens as an option in the future. The NRC also emphasized that trees should be watered deeply on a regular basis during drier months, to help prevent root migration under sidewalks.

The Planning Commission also had general tree removal/replacement process questions, particularly concerning NRC’s pollinator garden proposal, as well as changes to sidewalk alignments to run around root clusters so that trees didn’t have to be removed. Sidewalk standards are overseen by Public Works. Some Planning Commission members expressed concern about the need for the code change in the first place, if property owners are given options that have been optimized for their planter strips. Other commission members expressed that the often smaller trees now recommended for such strips can restrict sight lines, particularly for drivers.

Next Steps

Staff will return Ordinance 23-1004 for its Second Reading and Enactment at the May 3, 2023 Commission Meeting. OCMC Chapter 12.08 – Public and Street Trees is not a land use regulation, and a legislative adoption process is not required.

ORDINANCE NO. 23-1004

AN ORDINANCE OF THE CITY OF OREGON CITY AMENDING OREGON CITY MUNCIPAL CODE CHAPTER 12.08 – PUBLIC AND STREET TREES AND CHAPTER 12.32 – HERITAGE TREES.

WHEREAS, At the direction of the City Commission, the Natural Resource Committee, working in conjunction with Public Works, recommended changes to the Street Tree Code to exempt street trees in planter strips three feet wide or less from replanting or fee in lieu requirements; and

WHEREAS, Planning Division staff presented these recommendations to the Citizen Involvement Committee, Planning Commission, and City Commission for questions and feedback; and

WHEREAS, Planning Division staff have presented these recommendations to the general public, received public input, and conveyed that input to the City Commission; and

WHEREAS, The City Commission has directed Planning Division staff to make changes to the Public and Street Tree Code to exempt street trees in planter strips three feet wide or less from replanting or fee in lieu requirements; and

WHEREAS, The City Commission has directed Planning Division staff to make changes to the Public and Street Tree Code to clarify and make consistent the City Manager or designee as the decision-maker for Street Tree Removal and Replanting applications; and

WHEREAS, The City Commission has directed Planning Division staff to make changes to the Public and Street Tree Code to clarify and make consistent use of the term Certified Arborist, as defined in OCMC 17.04.082; and

WHEREAS, The City Commission has directed Planning Division staff to make changes to the Public and Street Tree Code to remove the County-level deed recordation requirement for any street trees designated in private front yards; and

WHEREAS, The City Commission has directed Planning Division staff to make changes to the Public and Street Tree Code to more clearly prioritize street tree replanting alternatives, making the fee in lieu option a last resort; and

WHEREAS, The City Commission has directed Planning Division staff to make changes to the Public and Street Tree Code to clarify – where no requirement currently exists – replacement street tree size requirements for dead, diseased, and hazardous trees,

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. The City Commission adopts amendments to Oregon City Municipal Code Title 12: Streets, Sidewalks and Public Places, which are attached hereto as Exhibits ‘A,’ ‘B,’ and ‘C.’

Section 2. Severability. If any provision of this Ordinance or its application to any person or circumstance is held invalid, the invalidity does not affect other provisions or applications of this Ordinance that can be given effect without the invalid provision or application, and to this end, the provisions of this Ordinance are severable.

Section 3. Effectiveness. This Ordinance shall take effect on June 2, 2023.

Read for the first time at a regular meeting of the City Commission held on the 19th day of April 2023, and the City Commission enacted the foregoing ordinance on the 3rd day of May 2023.

DENYSE C. MCGRIFF
Mayor

Attested to this day of ,

Jakob Wiley, City Recorder

Approved as to legal sufficiency:

City Attorney

12.08.035 Tree removal and replacement.

Existing street trees, trees in the right-of-way, and trees on public property shall be retained and protected during development unless removal is specified as part of a land use approval or in conjunction with a public capital improvement project, in accordance with OCMC 17.41. Tree removal shall be mitigated by the following:

A. ~~A.~~ A dead, diseased, or hazardous street tree, as determined by a ~~registered~~ certified arborist and approved by the ~~city~~City Manager or designee, may be removed~~,~~ if replaced with one (1) new tree for each dead, diseased, or hazardous tree that is removed.

1. Hazardous trees which have raised the adjacent sidewalk in a manner which does not comply with the Americans with Disabilities Act may be removed and replaced without ~~approval~~ a report from~~of~~ a~~n~~ certified arborist, as defined in OCMC 17.04.082.

2. All replacement street trees under this section shall have a minimum one and one half (1.5) inch caliper trunk measured six (6) inches above the root crown.

B. Removed trees that are not determined to be dead, ~~A non-~~diseased, or~~non-~~ hazardous ~~street tree that is removed~~ shall be replaced in accordance with Table 12.08.035. All replaced street trees shall have a minimum one and one ~~-~~half ~~-~~(1.5) inch caliper trunk measured six (6) inches above the root crown.

Table 12.08.035

Replacement Schedule for Trees Determined to be Dead, Diseased or Hazardous by a Certified Arborist		Replacement Schedule for Trees Not Determined to be Dead, Diseased or Hazardous by a Certified Arborist	
Diameter of tree to be Removed (Inches of diameter at 4-ft. height)	Number of Replacement Trees to be Planted	Diameter of tree to be Removed (Inches of diameter at 4-ft. height)	Number of Replacement Trees to be Planted
Any Diameter	1 Tree	Less than 6"	1 Tree
		6" to 12"	2 Trees
		13" to 18"	3 Trees
		19" to 24"	4 Trees
		25" to 30"	5 Trees
		31" and over	8 Trees

C. ~~For the purposes of this chapter, r~~Removed trees shall be replaced by approved tree species:

1. ~~trees w~~Within the right-of-way abutting the same frontage; and

2. ~~subject~~ Subject to the ~~clearance distances required~~ requirements under OCMC 12.08.015~~.B~~.

D. If an applicant can demonstrate to the satisfaction of the City Manager or designee that a sufficient location to replant tree(s) according to section C is not available, the ~~community development director~~City Manager or designee may allow:

1. ~~Off-site i~~Installation of replacement tree(s) in one of the following alternative locations:

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a. ~~within~~ Within the right-of-way abutting another property, with abutting property owner approval; or,

b. ~~on~~ On public property, with City Manager or designee approval; or

c. Within 10 feet of the right-of-way in the abutting private yard; or

~~2. Planting of replacement trees or designation of existing trees on the abutting property within ten feet of the right-of-way as street trees. Designated street trees shall be a minimum of two inches in caliper and shall comply with the requirements in section B. In order to assure protection and replacement of the trees on private property, a covenant shall be recorded identifying the tree(s) as subject to the protections and replacement requirements in this chapter; or~~

2.~~3.~~ As a last resort, a fee in lieu of replacing the tree(s), subject to the following:

a. ~~If~~The applicant can demonstrate, to the satisfaction of the City Manager or designee, that none of the alternative replanting options in section D.1 ~~sufficient~~is sufficient for replanting. ~~space to replant tree(s) is not available, the community development director may allow a fee in-lieu of planting the tree(s)~~

b. Is to~~to~~ be placed into a city fund dedicated to obtaining trees, planting trees, and/or tree education in Oregon City.

E~~D.~~ Exceptions:

1. Trees that are listed as invasive non-native, ~~or~~ nuisance, prohibited, or noxious vegetation species as defined in OCMC 17.04.605, may be removed without replacement or fee in lieu of replacement.

2. Trees in planter strips three (3) feet or less in width may be removed without replacement or fee in lieu of replacement.

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12.08.025 General tree maintenance.

Abutting property owners shall be responsible for the maintenance and replacement of street trees and planting strips. Topping of trees is prohibited, unless under recommendation of a certified arborist~~, or other qualified professional~~. Trees shall be trimmed appropriately. Maintenance shall include watering during dry periods, trimming of established trees to remove dead branches and dangerous limbs and to maintain a minimum seven-foot clearance above all sidewalks, eight-foot clearance in clear vision areas pursuant to OCMC 10.32, and ten-foot clearance above the street. Planter strips shall be kept clear of weeds, obstructing vegetation and trash.

12.32.020 Definitions.

For the purposes of this chapter the following definitions are used:

"Diseased tree" means a tree that has a naturally occurring disease that is expected to kill the tree, or which harbors communicable diseases or insects of a type that could infest and cause the decline of adjacent or nearby trees as determined by a certified arborist, ~~forester or horticulturist~~as defined in OCMC 17.04.082.

"Hazardous tree" means a tree that presents a significant risk to life or property as determined by a certified arborist, ~~forester, or horticulturalist~~as defined in OCMC 17.04.082. An otherwise healthy tree that may become a hazard to a proposed future development shall not be considered a hazardous tree. Hazardous trees may include, but are not limited to dead, diseased, broken, split, cracked, leaning, and uprooted trees. A tree harboring communicable diseases or insects of a type that could infest and cause the decline of adjacent or nearby trees may also be identified as a hazardous tree.

"Heritage stand" means a group of two or more trees that have been designated by the city as having unique importance, subject to the heritage tree regulations of OCMC 12.32.

"Heritage tree" means a tree that has been designated by the city as having unique importance, and subject to the heritage tree regulations of OCMC 12.32. Where a grouping of two or more heritage trees has been so designated, the term "heritage stand" may be used.

"Imminent hazard tree" means a hazardous tree, all or more than thirty percent of which has already fallen or is estimated to fall within seventy-two hours into the public right-of-way or onto a target that cannot be protected, restricted, moved, or removed. (See also Tree, hazard.) Determination of imminent hazard may be made by the city of Oregon City public works or emergency personnel, a PGE forester, or a certified arborist.

"Native tree" or "native tree stand" refers to a regulated native tree or stand of trees that are defined as such on regionally recognized plant lists. Significant native trees are those that contribute to the landscape character of the area.

"Tree stand" means a stand of three or more trees which together create a mutual canopy continuous over eighty or more percent of the area within the boundaries of the stand.

12.08.035 Tree removal and replacement.

Existing street trees, trees in the right-of-way, and trees on public property shall be retained and protected during development unless removal is specified as part of a land use approval or in conjunction with a public capital improvement project, in accordance with OCMC 17.41. Tree removal shall be mitigated by the following:

A. A dead, diseased, or hazardous street tree, as determined by a certified arborist and approved by the City Manager or designee, may be removed if replaced with one (1) new tree for each dead, diseased or hazardous tree that is removed.

1. Hazardous trees which have raised the adjacent sidewalk in a manner which does not comply with the Americans with Disabilities Act may be removed and replaced without a report from a certified arborist, as defined in OCMC 17.04.082.

2. All replacement trees under this section shall have a minimum one and one half (1.5) inch caliper trunk measured six (6) inches above the root crown.

B. Removed trees that were not determined to be dead, diseased, or hazardous shall be replaced in accordance with Table 12.08.035. All replaced street trees shall have a minimum one and one-half-inch (1.5 inch) caliper trunk measured six (6) inches above the root crown.

Table 12.08.035

Replacement Schedule for Trees Determined to be Dead, Diseased or Hazardous by a Certified Arborist		Replacement Schedule for Trees Not Determined to be Dead, Diseased or Hazardous by a Certified Arborist	
Diameter of tree to be Removed (Inches of diameter at 4-ft. height)	Number of Replacement Trees to be Planted	Diameter of tree to be Removed (Inches of diameter at 4-ft. height)	Number of Replacement Trees to be Planted
Any Diameter	1 Tree	Less than 6"	1 Tree
		6" to 12"	2 Trees
		13" to 18"	3 Trees
		19" to 24"	4 Trees
		25" to 30"	5 Trees
		31" and over	8 Trees

C. Removed trees shall be replaced by approved tree species:

1. Within the right-of-way abutting the same frontage; and

2. Subject to the requirements under OCMC 12.08.015.

D. If an applicant can demonstrate to the satisfaction of the City Manager or designee that a sufficient location to replant tree(s) according to section C is not available, the City Manager or designee may allow:

1. Installation of replacement tree(s) in one of the following alternative locations:

a. Within the right-of-way abutting another property, with abutting property owner approval, or

b. On public property, with City Manager or designee approval, or

c. Within 10 feet of the right of way in the abutting private yard; or

2. As a last resort, a fee in lieu of replacing the tree(s), subject to the following:

a. The applicant must demonstrate to the satisfaction of the City Manager or designee that none of the alternative replanting options in section D.1 is sufficient for replanting.

b. Is to be placed into a city fund dedicated to obtaining trees, planting trees and/or tree education in Oregon City.

E. Exceptions:

1. Trees that are listed as invasive non-native, nuisance, prohibited, or noxious vegetation species, as defined in OCMC 17.04.605, may be removed without replacement or fee in lieu of replacement.

2. Trees in planter strips three (3) feet or less in width may be removed without replacement or fee in lieu of replacement.

12.08.025 General tree maintenance.

Abutting property owners shall be responsible for the maintenance and replacement of street trees and planting strips. Topping of trees is prohibited, unless under recommendation of a certified arborist. Trees shall be trimmed appropriately. Maintenance shall include watering during dry periods, trimming of established trees to remove dead branches and dangerous limbs and to maintain a minimum seven-foot clearance above all sidewalks, eight-foot clearance in clear vision areas pursuant to OCMC 10.32, and ten-foot clearance above the street. Planter strips shall be kept clear of weeds, obstructing vegetation and trash.

12.32.020 Definitions.

For the purposes of this chapter the following definitions are used:

"Diseased tree" means a tree that has a naturally occurring disease that is expected to kill the tree, or which harbors communicable diseases or insects of a type that could infest and cause the decline of adjacent or nearby trees as determined by a certified arborist, as defined in OCMC 17.04.082.

"Hazardous tree" means a tree that presents a significant risk to life or property as determined by a certified arborist, as defined in OCMC 17.04.082. An otherwise healthy tree that may become a hazard to a proposed future development shall not be considered a hazardous tree. Hazardous trees may include, but are not limited to dead, diseased, broken, split, cracked, leaning, and uprooted trees. A tree harboring communicable diseases or insects of a type that could infest and cause the decline of adjacent or nearby trees may also be identified as a hazardous tree.

"Heritage stand" means a group of two or more trees that have been designated by the city as having unique importance, subject to the heritage tree regulations of OCMC 12.32.

"Heritage tree" means a tree that has been designated by the city as having unique importance, and subject to the heritage tree regulations of OCMC 12.32. Where a grouping of two or more heritage trees has been so designated, the term "heritage stand" may be used.

"Imminent hazard tree" means a hazardous tree, all or more than thirty percent of which has already fallen or is estimated to fall within seventy-two hours into the public right-of-way or onto a target that cannot be protected, restricted, moved, or removed. (See also Tree, hazard.) Determination of imminent hazard may be made by the city of Oregon City public works or emergency personnel, a PGE forester, or a certified arborist.

"Native tree" or "native tree stand" refers to a regulated native tree or stand of trees that are defined as such on regionally recognized plant lists. Significant native trees are those that contribute to the landscape character of the area.

"Tree stand" means a stand of three or more trees which together create a mutual canopy continuous over eighty or more percent of the area within the boundaries of the stand.

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: City Commission **Agenda Date:** 04/19/2023

From: Public Works Director John M. Lewis, PE

SUBJECT:

I-205 Toll Project Environmental Assessment Discussion

STAFF RECOMMENDATION:

Staff requests that City Commission review and provide feedback on the I-205 Toll Project Environmental Assessment

EXECUTIVE SUMMARY:

The Oregon Department of Transportation (ODOT) has released the National Environmental Policy Act Environmental Assessment (EA) for the I-205 Toll Project. The EA consists of nearly 3,000 pages of analysis and detailed information about the I-205 Toll Project proposal. Public Comments are due by the end-of-day on April 21st. This report provides a draft comment letter and ancillary documents to support the letter.

BACKGROUND:

The Oregon Department of Transportation (ODOT) has released the Environmental Assessment (EA) for the I-205 Toll Project. The EA documents consist of a 192-page summary report, with 18 appendices (2,801 pages) of detailed technical information on a variety of topics that include transportation, air quality, energy and greenhouse gases, economics, noise, social resources and communities, environmental justice, land use, geology and soils, hazardous materials, historic and archeological resources, vegetation and wildlife, project cumulative impacts, and project engagement.

ODOT has granted a 60-day public comment period which staff feels is insufficient but the City's request (other agency requests too) for additional review time has been denied. Staff is here tonight with a Draft I-205 Toll Project EA comment letter for review and approval.

There have been opportunities for the community to learn more about the project and options for submitting comments, but each of these has passed. Citizen comments can still be submitted via online form, email, voicemail, or mail.

More information on the I-205 Toll Project EA, supporting documents and opportunities to participate in the EA can be found at https://www.oregon.gov/odot/tolling/Pages/I-205-Tolling.aspx

OPTIONS:

1. Authorize staff to finalize this draft and send the I-205 Toll Project EA Comment letter as written.
2. Provide staff specific direction on changes needed to finalize the I-205 Toll Project EA Comment letter and send along once amended.
3. Make the determination that an Oregon City letter is not something the City Commission is willing to authorize.

OREGON CITY

Office of the Mayor

625 Center Street | Oregon City OR 97045
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April X, 2023

Sent Via Electronic Mail

Mandy Putney
ODOT Urban Mobility Office
18277 SW Boones Ferry Road
Tualatin, OR 97224

CC: Keith Lynch, FHWA
Kris Strickler, ODOT
Brendan Finn, ODOT

RE: City of Oregon City Comments on I-205 Toll Project Environmental Assessment

Dear Ms. Putney:

Thank you for the opportunity to comment on the draft Environmental Assessment ("EA") of the I-205 Toll Project (the "Toll Project"). Please accept these comments from the City of Oregon City ("Oregon City"), as well as the attached Technical Memorandum from Carl Springer and Kevin Chewuk at DKS Associates (the "DKS Technical Memorandum"), and the Staff Comment Log (EA, Appendix K and Q). For the reasons explained further below, Oregon City believes that the EA performed by ODOT is inadequate, unsupported by substantial evidence, and cannot support a finding of no significant impact ("FONSI"). Instead, we urge ODOT to undertake a full Environmental Impact Statement ("EIS") or otherwise alter the project to one that can be supported by the law and evidence.

Oregon City has been a long-time partner of ODOT and has worked with the agency on numerous projects and facilities within or adjacent to Oregon City. Oregon City values its relationship with ODOT but cannot accept the analysis regarding the Toll Project or the impact that the Toll Project will have on Oregon City. As explained further below and in the attached comment log and studies, Oregon City is uniquely positioned to suffer significant adverse impacts that have not been acknowledged or mitigated. The diversion that will be caused by the Toll Project will cause untold impacts on the neighborhoods and businesses in Oregon City. There simply is no justification for having Oregon City suffer the brunt of the consequences for this project to make life easier for other citizens of the region or the state of Oregon.

In addition to the unique impacts on Oregon City, we join in the objections filed by our neighbors and regional partners including Clackamas County, and the cities of West Linn, Canby, Gladstone, Lake Oswego, and the overall Oregon City residential and business communities. Each of these communities will also suffer significant impacts that have not been adequately studied or mitigated.

Further we must reemphasize Oregon City's request for 30 days of additional EA review time. This letter and attachments encompass our best efforts to review the EA report and Appendix K and Q. While we are mindful of the over 2,000 pages of EA appendices, Oregon City did not have the time or resources to review or hire experts to provide EA comments on the other appendixes. We are in receipt of your decision to deny our request for additional review time. We want to add that while the timeline for the EA review is consistent with 23 CFR 771.111(h) and was approved by the Federal Highway Administration, we ask you to revisit this decision as ODOT has elected to also pursue a similarly aggressive Regional Mobility Pricing Project schedule, and has released a long list of I-205 project documents that have not been available until recently. With this, combined with the work that is also underway to complete the Metro Regional Transportation Plan Update, cities like Oregon City just do not have the bandwidth to provide you with the detailed comments needed to get this decision right.

In short, and as explained further below and in the memorandum from DKS Associates, the EA cannot support a FONSI, and Oregon City urges ODOT to do the necessary work to perform a full EIS.

1. <u>There Is No Authority for the Project as Proposed by ODOT</u>

Before turning to the main issues regarding the EA, it is worth pausing to note that the project itself is not authorized by law. As described in Section 1.1 of the EA, the project is to use "variable rate tolls" on only a portion of I-205 – that portion "between Stafford Road and Oregon Route (OR) 213" as shown in Figure 1.1 of the EA. The authorization for the use of variable rate tolling is described in Section 1.3 of the EA as coming from HB 2017; however, HB 2017 is very specific in its grant of authority for tolling. Section 120(3) of HB 2017 (2017) provides as follows:

> "The commission shall implement value pricing in the following locations:
> (a) **On Interstate 205, beginning at the Washington state line and ending where it intersects with Interstate 5** in this state.
> (b) On Interstate 5, beginning at the Washington state line and ending where it intersects with Interstate 205.
> (4) In addition to areas listed in subsection (3) of this section, the commission may implement value pricing in other areas of this state."

Those sections require that, if tolling is implemented on I-205, it "shall" be from the Washington state line to the intersection with Interstate 5. There is no authority for the "half-a-loaf" project analyzed by ODOT in the EA and, therefore, the project itself lacks authorization from the legislature.

2. <u>The Draft EA Does Not Adequately Assess Project Alternatives</u>

The alternatives analyzed in Section 2 of the Draft EA consist of only two alternatives – a "no-build" alternative and the Toll Project itself. At no point does the EA analyze the option that was

actually authorized in HB 2017 (2017) (i.e., value pricing "beginning at the Washington state line and ending where it intersects with Interstate 5"), nor does it analyze the reasonably foreseeable future action, which consists of the Regional Mobility Pricing Project ("RMPP"), which proposes congestion pricing along the same corridor, as well as additional corridors throughout the region. The RMPP is a reasonably foreseeable future action because its environmental review is already underway, with a scoping comment period having already been held from November 18, 2022, through January 6, 2023. The RMMP anticipates a draft EA in late 2023. https://www.oregon.gov/odot/tolling/Pages/I-5-Tolling.aspx. Given the additional tolling activity on Oregon roads in the foreseeable future, the Draft EA is inadequate in not assessing the impacts of the RMMP.

3. **The Project Goals and Objectives Outlined in the EA in Several Instances Miss the Desired Outcomes**

While we support the process, work, and engagement that went into the project goals and objectives, the I-205 Toll Project misses many of the key goals. The ODOT decision to place the toll gantries where proposed does little to nothing to limit diversion. The reported build alternatives analysis suggesting that pedestrians trying to use alternate modes of travel will be less safe is contrary to the goal of supporting safe travel regardless of mode of transportation. Our review of the EA finds little to suggest tolling alone supports multimodal transportation choices, nor is it clear if the financial analysis (not part of the EA) will generate funding to further support multimodal transportation. To suggest that Oregon City businesses will thrive because Main Street will be so congested that drivers will park and go use Oregon City businesses is at best a misinterpretation.

4. **The Modeling Relied on by the EA is Insufficient to Establish the Full Impact of the I-205 Diversion and the Effects of Any Proposed Mitigation**

The entire purpose of the EA is to assess the potential environmental effects of the use of "variable-rate" tolling on a portion of I-205. EA 1-1. One of the stated primary goals of the Toll Project is to "limit additional traffic diversion from tolls on I-205 to adjacent roads and neighborhoods." EA 1-7. This goal is critical to Oregon City and to other local jurisdictions adjacent to and nearby the location of the Project who lack infrastructure to accommodate any more I 205 diversion. As identified in a variety of correspondence from Oregon City and other jurisdictions, the Project will have significant detrimental impacts to neighborhoods throughout Oregon City, most prominently in Downtown Oregon City, which is located at the receiving end of the only non-ODOT controlled bridge over the Willamette River. The EA acknowledges these impacts, but as explained in the DKS Technical Memorandum, the modeling done by ODOT in the EA is insufficient to establish the full impact of the diversion caused by the Toll Project. Moreover, the modeling also is insufficient to determine the effect of ODOT's proposed mitigation.

5. <u>The Mitigation Proposed for the Toll Project Is Insufficient, Inaccurate, and Unrelated to the Impacts of the Toll Project</u>

As noted above and discussed in the DKS Technical Memorandum, in addition to the inaccurate modeling of the impacts, the identified mitigation is insufficient. For example, the EA modeling indicates that traffic volumes in the City of Gladstone decrease, yet the proposed mitigation includes medians, trees, and other improvements in Gladstone. While these improvements may well be warranted and be a good thing, they do not serve to mitigate the impacts of the Toll Project and should not be identified as such. As another example, the EA proposes mitigation at Main Street and 7th Street in Oregon City, yet geometric constraints make installation of the proposed mitigation impossible. There are a whole series of similar concerns with the proposed mitigation contained in the DKS Technical Memorandum that makes clear that the mitigation for the proposed Toll Project, even if it had been properly modeled, is inadequate.

6. <u>Even with the Identified Mitigation, the "Build Alternative" Will Decimate Oregon City's Transportation System</u>

All Oregon City intersections included in the EA study have worse traffic operations under the Build Alternative compared to the No Build Alternative. Some of those intersections will fail to satisfy the currently adopted intersection mobility standard. Oregon City is a metro area with significant development potential including three approved concept plan areas yet to be developed and the only yet to be developed Regional Center. With Oregon City's long-range planning for the eventual realization of these undeveloped or underdeveloped areas, Oregon City has invested years of funding to be prepared to comply with the Transportation Planning Rule by implementing a long list of right-sized transportation projects. The I-205 Toll Project and the associated diversion changes most of Oregon City's key transportation projection assumptions and drives the trip numbers to problem levels much sooner than planned. ODOT provides no guidance on how Oregon City will manage its transportation system as necessary to comply with the Transportation Planning Rule (OAR 660-012-0060). In addition to the specific intersections studied in the EA, there are a host of other intersections in Oregon City that were not studied, yet they, too, will fail. Again, the EA is flawed and lacks the more detailed micro-simulation modeling needed to understand the full impacts on Oregon City.

7. <u>The Proposed I-205 Tolling Timeline puts Tolls Before Project Completion, and the EA Provides No Answers to How the Impacts of Tolling Before the Benefits are Achieved Will Affect Oregon City</u>

The I-205 Improvements Project includes 7 miles of a third lane, improvements, updates or replacement of 9 bridges, and improvements to 2 interchanges. The balance of the schedule beyond Phase I is still under evaluation, but original estimates had the projects being completed in 2027. Phase I will include an additional lane across the Abernethy Bridge with the current 2-lane configurations between Hwy 213 and Stafford Road. The ODOT proposal for 2024-2027 pre-completion tolling is going to exacerbate the community frustration with tolling and the propensity for diversion. The EA acknowledges that the traffic volumes would generally be

higher on segments of SW Borland Road, SW Stafford Road, OR 99E, OR 213 and OR 43 if both bridges are tolled during the pre-completion period. The EA only states that any mitigation proposed to address near-term impacts that is determined to also help alleviate pre-completion tolling impacts could be implemented before tolling begins. Asking Oregon City residents to take on the impacts of pre-completion tolling, with no benefits of a complete project, is unacceptable. In accordance with Section 120(3) of HB 2017, tolling on I-205 "shall" be from the Washington state line to the intersection with Interstate 5. It's also our understanding that the legislature never intended for tolling to be in place before the beneficial improvements were complete, and then only along the entire corridor.

8. <u>I-205 Tolling Will Hurt the Local Economy and Will Devastate Oregon City's Award-Winning Main Street</u>

Due to the I-205 Toll Project, the entire downtown district would be adversely impacted in various ways. Congestion downtown will increase dramatically. Downtown Oregon City is a very small geographic area constrained by I-205, Hwy 99E, the Willamette River, the Clackamas River, and the Railroad. Therefore, dramatic increases in diversion traffic will only clog the downtown area. This will create a negative shopping and dining experience in Downtown Oregon City. The I-205 Toll Project will make it more difficult for retail merchants and restaurateurs to attract customers and workers, and access to limited parking along our already fragile network of one- and two-way streets will at times be impossible.

Tourism is an important economic sector for Oregon City. The tolling of I-205 will be harmful to the local tourism economy in the downtown area and will make it difficult for this burgeoning industry to grow.

9. <u>The EA is Flawed in Relying on Assuming Reasonably Foreseeable Future Actions that Are Not Reasonably Foreseeable</u>

The EA identifies a project as Reasonably Foreseeable Future Actions (RFFA) that should not be considered as part of the No Build Alternative. The project is TriMet's Southwest Corridor Project – the proposed light rail line from downtown Portland to Tualatin. The project is unfunded and has no reasonable expectation of being funded in the near future. A funding measure was proposed in November 2020 but rejected by the voters of the region. Including this project skews the results of the No Build and cumulative impacts of the Build Alternative. The analysis states "For example, the Southwest Corridor Light Rail Project and the Willamette Falls Drive Multimodal Improvements would provide alternative transportation options in the event of a road closure due to wildfire or flooding." TriMet's Southwest Corridor Project should not be included in the EA's analysis as a reasonably foreseeable future action.

<u>Conclusion</u>

This letter contains only a high-level summary of the flaws in the EA. Most critically, the EA downplays the impacts that the Toll Project will have through diversion of traffic from I-205 onto

the streets of Oregon City and its neighbors. There is limited transit availability, and any diversion off I-205 will have a 1:1 impact of increased traffic on city streets. Those impacts will have a devastating effect on Oregon City's economic vitality, as the traffic will cause bottlenecks throughout Downtown Oregon City – the economic heart of the city. It will also have additional impacts throughout the neighborhoods of Oregon City, as people search for alternative routes to avoid Downtown. This will cause additional stress for pedestrians and cyclists, not to mention the impact on the livability and quality of life in Oregon City. In short, while the Toll Project may result in an improvement to throughput on I-205, the cost of that improvement will be borne by Oregon City. The EA does not acknowledge those impacts.

As noted previously, the EA for the Toll Project is inadequate, flawed, and cannot support a Finding of No Significant Impact. A toll proposal in the Metro area should be done as a regional mobility pricing strategy, and ODOT should start over and proceed with an Environmental Impact Statement that truly grapples with the real and significant impact that Oregon City, and its neighbors, will bear should the Toll Project proceed.

Sincerely,

Denyse C. McGriff
Mayor

I-205 Toll Project Environmental Assessment

Staff Comment Log (EA, Appendix K and Q)

Updated: April 11, 2023

Document/Appendix	Section	Comment	Page
EA	1.2	The legislation on value pricing in Oregon (HB-2017) (Section 120) regarding the authority to "pursue and implement" tolling for "traffic congestion" (not seismic and capacity). Moreover, the direction was for the entirety of 205 and 5, not limited stretches (I205 to Stafford). The EA legislation directed the OTC to pursue and implement value pricing on I-5 and I-205.	1-2
EA	1.2	In 2018 FHWA determined the I-205 Improvements Project qualified as a categorical exclusion because it would not involve significant environmental impacts. This exclusion designation determination (EA vs EIS) was before tolling was suggested as part of the I205 project. ODOT should renew its request for a categorical exclusion including any associated public hearings or public comments efforts to ensure the project definition is accurate by including the proposed I205 tolling plan.	1-3
EA	1.5	Goals and Objectives – Arguably at least five of the ten project goals have not been met by this project as proposed in the EA. There is plenty of evidence in the project to establish that the following goals were missed: **Limit additional traffic diversion from tolls on I-205 to adjacent roads and neighborhoods** – Oregon City, West Linn, and Canby will be most negatively impacted diversion associated with I-205 tolling. ODOT and the EA reports provides little in the way of a solution to I-205 diversion mitigation to resolve the 3-8 minutes travel delays in our downtown due to I-205 tolling diversion. Areas of Oregon City and Unincorporated Clackamas County near I-205 and portions of 99E near Canby would have the largest numbers of intersections with worse operations under the Build Alternative as compared to the No Build alternative in 2027 and 2045. **Support safe travel regardless of mode of transportation** – the project proposes little in the way of support of multimodal improvements and some of the proposed driving mitigation further reduces safety for alternate modes. The project and proposed mitigation ignore that most crashes involving pedestrians and bicyclists occurred on OR 99E. On 99E from 11th to Main Street in the downtown, Oregon City would experience worse pedestrian level of service under the Build Alternative. At 99E and the I-205 on ramps the accident rate increases under the Build Alternative. **Contribute to regional improvements to air quality** – the build alternative(s) project includes proposed diversion mitigation as it relates to analysis of the air quality impacts due to diversion through local neighborhoods will be negatively impacted. The EA analysis looks at the project results for the Portland/Vancouver region rather than the local Area of Impact. The analysis also focusses on the vehicle hours traveled on I205 and discounts the added congestion on the local network. **Support multimodal transportation Choices** – ODOT has not proposed any meaningful new multimodal choices, nor have they proposed any real improvements that might mitigate I-205 diversion.	1-7

		Support Economic Growth. Oregon City and West Linn's Main Street's will not see improvements and in most cases worse conditions for movement of goods and people.	
EA	2.1.2	ODOT modelling is insufficient to establish 1) the full impact of I-205 tolling diversion, and 2) the effect of the proposed "mitigation" projects. The analysis necessary to analyze the full cause and impact of I-205 tolling requires micro-simulation modeling and ODOT has not been able to complete this work, analyze the results and propose meaningful solutions and instead suggesting they may do it later.	2-7
EA		**NOTE: The work of the I205 EA project team was a tabletop exercise with little field time validating the feasibility of the projects. Based on the Oregon City Mitigation workshops, it was our conclusion that the project team was not familiar with Oregon City and the constraints around each of the project areas. Considerations for existing historic buildings, sight obstructions, limited ROW, and existing but recent improvements were not considered in the development of the proposed mitigation. With years of history working through successful design and construction projects in ODOT ROW, we have the concern that meaningful mitigation proposals would not ever obtain the design exceptions required of the office of State Traffic Engineer. This EA should include a memo from the State Traffic Engineer that new design exceptions would be required and approved in any I205 mitigation projects proposed.**	
EA	3.1 (table 3-12)	**99E/Gladstone/Oregon City Area** – According to the EA traffic volumes in Gladstone go down. If that were correct why propose mitigation in Gladstone? On the Gladstone side of the Clackamas River Bridge, proposed mitigation includes medians, trees, and yellow reflective sheeting. These measures are not mitigating the diversion resulting from I-205 and the proposed safety measures should be ODOT maintenance commitments rather than considered project mitigation.	3-33
EA	3.1 (table - 12)	**OR 99E between W Arlington Street and Main Street** – the mitigation on the Gladstone side of the Clackamas River is too short to include a median or a midblock crosswalk. The mitigation proposed on the Oregon City side of the Clackamas River is in an improved area completed years ago so the median, the lighting, and the sidewalks are in place already. There are no pedestrian crossing warrants or destination and this segment is not a responsible place to include a midblock crossing.	3-34
EA	3.1 (table - 12)	**OR 99E North of Dunes Drive** – Widening for a transit stop may fit within the existing travel lanes. This occurs today in the travel lanes as stripped, so this is not diversion mitigation. Anything more impactful will affect the sidewalk and plaza build with the recently completed McLoughlin Blvd enhancement project.	3-34
EA	3.1 (table - 12)	**OR99E/ I-205 Southbound** Ramps – Adding reflective sheeting to signal backplates is not mitigation but instead overdue maintenance.	3-34
EA	3.1 (table - 12)	**OR99E/ I-205 Northbound Ramps** – This is an existing Oregon City Transportation System Plan project and something that should have been completed as part of the Phase 1A project. This project also complicates pedestrian crossings.	3-35

EA	3.1 (table - 12)	**OR 99E/15th St** - This project warrants the micro-simulation modelling and sufficient geometric design to confirm the project will work. The project also complicates pedestrian crossings. A challenging project that may not work. This project, assuming it mitigates i205 tolling traffic diversion should be accomplished in the 2027-year analysis period rather than 2045.	3-3
EA	3.1 (table - 12)	**OR99E/10th Street** – This mitigation description should be revised to state: commit to building the Willamette Falls path/OR 99E Enhance (10th Street to Railroad Avenue) project concept plan outcome. This project should be accomplished in the 2027-year analysis period rather than 2045.	3-35
EA	3.1 (table - 12)	**OR99E from 10th Street to Railroad Ave.** – This project should be accomplished in the 2027-year analysis period.	3-36
EA	3.1 (table - 12)	**Main Street / 7th Street** – The mitigation listed in the EA does not apply to the impact location. The intersection is one of those locations that does not lend itself to mitigation and as a result, this is one location that has the potential to impact the efficiency of Hwy 43, and the I205 Hwy 43 interchange. The EA needs to acknowledge that there is no project proposed for this location due to geometric constraints.	3-36
EA	3.1 (table - 12)	**Main Street/ 10th Street** – This project mitigation is being proposed without sufficient model analysis and may not provide any benefit. While pedestrian safety may be improved with a signal, this 4-way stop is efficient and moves all modes of travel very well.	3-36
EA	3.1 (table - 12)	**SE 82nd Dr and I-205 northbound ramps** – It's not clear what this project entails and based on the footnote ODOT is unsure if the project provides any benefit.	3-36
EA	3.1 (table - 12)	**OR99E and South End Road** - This intersection already has constrained lanes, and the site provides little room for expanded footprint. ODOT needs to better articulate the full intention of this project before taking credit for this being mitigation.	3-37
EA	3.1 (table - 12)	**OR 99E and Haines/New Era Road** – The project proposes a RRFB to facilitate crossing of OR 99E and extending sidewalks. This is not a location that entails much for the pedestrian generation. There is a bus stop but without an intersection project this seems like a mitigation project that is not likely to be supported by the ODOT /County.	3-37
EA	3.7.2	All Oregon City intersections included in the study have worse traffic operations under the Build Alternative compared to the No Build Alternative. Some intersections will fail the currently adopted intersection mobility standard and ODOT provides little guidance on how local agencies can manage this constraint while navigating the Oregon land use system. Many Oregon City Intersections not included in the study area are also going to fail. The more detailed micro-simulation modelling needed to understand the full impacts on Oregon City has yet to be completed and ODOT may never get to do this work.	3-79
K	4.3	Area of Potential Impact- the transportation system beyond the API boundary will be impacted by diversion, the API should use Main Street from the northern boundary south to 7th Street at the area to analyze	6
K	5	The API contains one park in Oregon City Jon Storm and one recreational area Sportcraft Landing. Both of these areas are in the Willamette River Green Way Overlay which implements Statewide Goal 15: Willamette River Green Way; however, this goal was not analyzed in this land use review, and it should be included.	9

K	6.4	Again, the study identified Statewide Land Use Goal 12 – Transportation for analysis but it should have also included Goal 15- Willamette River Greenway	15
K	6.2	Goal 12 Transportation: Section (2) states *Plans for new or for the improvement of major transportation facilities should identify the positive and negative impacts on (1) local land use patterns...(4) existing transportation systems... in a manner that sufficient to enable local governments to rationally consider the issues posed by the construction and operation of such facilities*. Findings in subsequent sections (as described in comments related to 660-012-0000 (1)(h) and (I) conclude there will be negative impacts to the existing transportation system in Oregon City.	17
K	6.2	TPR 660-012-0000 (1)(h)- the analysis found the Build Alternative to be Consistent with this portion of the goal; however for travel and freight corridors in the API that are not I-205 the travel times were found to be 26% shorter under the No Build Alternative and "some portions of 99E would experience up to 31% longer travel times in Oregon City under the Build Alternative". This finding is not consistent with the purpose statement: *Facilitate the safe flow of freight, goods, and services within regions and throughout the state through a variety of modes including road, air, rail, and marine transportation.*	18
K	6.2	TPR 660-012-0000 (1)(I)- the analysis found the Build Alternative to be Consistent with this portion of the goal; however, transportation facilities in the API are negatively impacted by the Build Alternative. "Travel times would be similar or slightly longer under the Build Alternative than the No Build Alternative on roadway segments near downtown Oregon City (e.g., portions of OR 43, Main Street, and OR 99E) depending on direction of travel and time of day, because of additional rerouting related to vehicles avoiding the tolled bridges". This finding is not consistent with the purpose statement: *Protect the functions of existing and planned transportation facilities, corridors, and sites*	19
K	6.2	Oregon Transportation Plan Policy 3.1, Strategy 3.1.1: The analysis found consistency with the Build Alternative and this Policy and Strategy. The findings conclude that "Some portions of southbound 99E would experience up to 31% (about 3 minutes) longer travel times in Oregon City under the Build Alternative than the No Build Alternative. ODOT is proposing mitigation measures designed to improve traffic flow in downtown Oregon City...." Creating longer travel times for freight moving through Oregon City does not address future needs of freight mobility and therefore the Build Alternative is not consistent with this policy of the OTP	23
K	6.2	Oregon Highway Plan Policy 1C, Action 1C.4: The analysis found consistency with the Build Alternative and this Policy and Strategy. The findings conclude that "Some portions of southbound 99E would experience up to 31% (about 3 minutes) longer travel times in Oregon City under the Build Alternative than the No Build Alternative. ODOT is proposing mitigation measures designed to improve traffic flow in downtown Oregon City...." Creating longer travel times for freight moving through Oregon City does not support improved timeliness in truck freight movements in the API therefore the Build Alternative is not consistent with this policy of the OHP	24
K	6.2	2022 Oregon City Comprehensive Plan Chapter 3, Goal 1: The analysis found that "Six intersections near downtown Oregon City would	26

		experience higher traffic volumes, longer delays, and greater congestion levels, and some of those intersections would have higher numbers of predicted crashes in 2027 and/or 2045 under the Build Alternative compared to the No Build Alternative. In addition, peak period travel times on Main Street and OR 99E in Oregon City are projected to be longer under the Build Alternative than No Build Alternative in 2045". These negative impacts to Oregon City's transportation system under the Build Alternative are not consistent with our Comprehensive Plan Goal to *Provide a safe, comfortable, and accessible transportation network that serves all modes of travel, including nonmotorized modes.*	
K	6.2	2013 Oregon City Transportation System Plan Volume 1, Goal 8, Objectives A and C: Four intersections were studied in the EA (OR 99E and I-205 ramp (NB), OR 99E and I-205 ramp (SB), McLoughlin Blvd and 14th St, and 7th Street and Main). The TTR shows that only one intersection at Main and 7th will meet mobility standards in 2045 while the remaining three will not meet the standards. The claim is that these intersections will not meet standards in the No Build Alternative either meaning the deficiency can't be attributed to the Build Alternative. However, it is reasonable to assume that mitigating the deficiency will be more difficult under the Build Alternative given the amount of traffic rerouting around the bridges.	27
Q	4.4.1	Reasonably Foreseeable Future Actions: two projects are repeatedly cited through the document as Reasonably Foreseeable Future Actions (RFFA) that should not be considered in the No Build Alternative. One project is Tualatin-Sherwood Road widening between Langer Farms Parkway (in Sherwood, OR) and Teton Avenue (in Tualatin, OR). The second project is TriMet's Southwest Corridor Project which is a proposed light rail line from downtown Portland to Tualatin. The project is accurately described as being on hold until funding is identified. A funding measure was proposed in November 2020 but ultimately rejected by the voters. It is unclear how either of these projects meets the criteria of Section 4.4 or has the potential to have an impact on the same resources as the Build Alternative. A third project is mentioned in the analysis, Willamette Falls Legacy Project Internal Roadways which is no longer proposed in the private developers revised plans.	P14, B-2, B-3
Q	4.4.1	Figure 4-1: Project numbers 10568 Tualatin-Sherwood Rd widening, 10907 HCT Southwest Corridor, and 12089 Willamette Falls Internal Roadways should all be removed from this figure, the No Build Analysis, and should not be considered as RFFAs.	p16
Q	6.1.2	Climate- Including the three projects mentioned in previous comments skews the results of the No Build and cumulative impacts of the Build Alternative. The analysis states "For example, the Southwest Corridor Light Rail Project and the Willamette Falls Drive Multimodal Improvements would provide alternative transportation options in the event of a road closure due to wildfire or flooding." There is no timeframe associated with the development of the Southwest Corridor because there is no funding identified for the project and therefore it should not be considered a viable alternative transportation option.	p26
Q	6.1.2	Climate- Again the analysis and conclusions are skewed by including the Tualatin-Sherwood Road widening project when discussing stormwater infrastructure. "Other projects such as the Tualatin-Sherwood Road Improvements, include improvements to stormwater facilities in the API, which would improve the resiliency of the stormwater infrastructure."	p26

		While this statement may be true it should be noted that stormwater from this particular project will drain to a different basin than stormwater infrastructure east of I-5. The standards may vary as well given that different jurisdictions have their own MS4 permits and stormwater in Washington County is overseen by Clean Water Services as opposed to stormwater management in Clackamas County which is overseen by Water Environmental Services.	
Q	6.1.3	Economics- "Some of the RFFAs, such as the Willamette Falls Legacy Project Internal Roadways project, directly support larger economic development activities that would increase jobs and services within the API." This project is no longer going forward as the private development plans have been revised and therefore should be included with No Build/ Build cumulative effect analysis.	p26
Q	6.1.4	Rerouting Traffic to Local Streets- Acknowledging the impacts of tolls on Environmental Justice Populations, the analysis describes "some traffic would reroute to local streets in order to avoid tolls, resulting in potential impacts on ...environmental justice populations traveling to hubs of social resources in Oregon City."	p29
Q	6.1.4	Technological Barriers- Diversion, increased vehicle traffic on Oregon City's roads as a result of avoiding toll, could increase as a result of technological barriers to using the toll system. "The lack of a cash payment option may make it difficult for the unbanked or other people experiencing low-income to purchase a transponder or to pay invoices and could discourage them from using the tolled segment of I-205".	p30
Q	6.1.4	Technological Barriers- The Southwest Corridor was considered as one of the only RFFAs that could contribute to technological barriers facing low-income and minority populations. However, due to unknown funding timing or sources this project should not be considered as an RFFA which means that the Toll Project is the sole project that will contribute negatively to Environmental Justice Populations by creating technological barriers, and these barriers could increase diversion onto Oregon City roadways.	p31

MEMORANDUM

DATE: April 3rd, 2023

TO: Dayna Webb, City of Oregon City

FROM: Carl Springer and Kevin Chewuk | DKS Associates

SUBJECT: Oregon City Regional Mobility Pricing Project Support
I-205 Tolling Project Environmental Assessment Review Memorandum

As requested, we have reviewed the I-205 Tolling Project Environmental Assessment (EA) and associated technical appendices[1]. The following memorandum summarizes our review, including reported impacts identified within Oregon City, and other relevant issues and potential impacts of concern to the City of Oregon City that were not addressed within the I-205 Tolling EA.

INTERSECTIONS ANALYZED IN OREGON CITY

The I-205 Tolling EA included 12 intersections within Oregon City as part of its transportation area of potential impact (API) analysis (see Figure 1). The intersections are noted below, included six along OR 99E between Dunes Drive and 10th Street, three along OR 213, two along Washington Street and one along Main Street in Downtown Oregon City.

- 7th St and Main St (ID #18)
- OR 99E and I-205 NB Ramps (ID #19)
- OR 99E and I-205 SB Ramps (ID #20)
- OR 99E and 15th St (ID #21)
- 15th St and Washington St (ID #22)
- OR 99E and 10th St (ID #23)
- Abernethy Rd and Washington St (ID #24)
- OR 213 and I-205 NB Ramps (ID #28)
- OR 213 and I-205 SB Ramps (ID #29)
- OR 213 and Washington St (ID #30)
- OR 99E and Dunes Dr (ID #40)
- OR 99E and 14th St (ID #41)

[1] I-205 Tolling EA, February 2023, Oregon Department of Transportation.

Findings for Oregon City:

While 12 intersections were analyzed in Oregon City, many were not included, especially along Main Street and other streets in Downtown Oregon City. These intersections will likely be impacted by the added traffic in the Build scenario, and particularly those on Main Street impacted by queuing and the potential spill back from the adjacent OR 99E intersections. The I-205 Tolling EA states that "Implementation of mitigation strategies may cause secondary impacts at adjacent intersections or roadways. Secondary impacts from implementing mitigation measures may require additional avoidance, minimization, or mitigation measures. An assessment of the effects associated with mitigation will be included in the Revised EA." Additional intersections that were not analyzed in the I-205 Tolling EA that may see impacts include: OR 99E and 12th Street, OR 99E and Main Street, OR 99E and S 2nd Street, Main Street and 10th Street, Main Steet and 12th Street, Main Street and 14th Street, Main Street and 15th Street, and 7th Street and Railroad Avenue.

FIGURE 1. OREGON CITY STUDY INTERSECTIONS INCLUDED IN THE I-205 TOLLING TRANSPORTATION API

Image Source: I-205 Tolling Transportation Technical Report, ODOT.

TRAFFIC DIVERSION WITH I-205 TOLLING

Introducing tolling on I-205 will cause some highway users to change their routes away from I-205 onto OR 99E and other roadways in Oregon City to avoid tolling. This is referred to as diverted traffic in the technical reporting. The nearest toll gantry to Oregon City is planned for the Abernethy Bridge immediately west of the OR 99E interchange, which is the regional gateway for the downtown area.

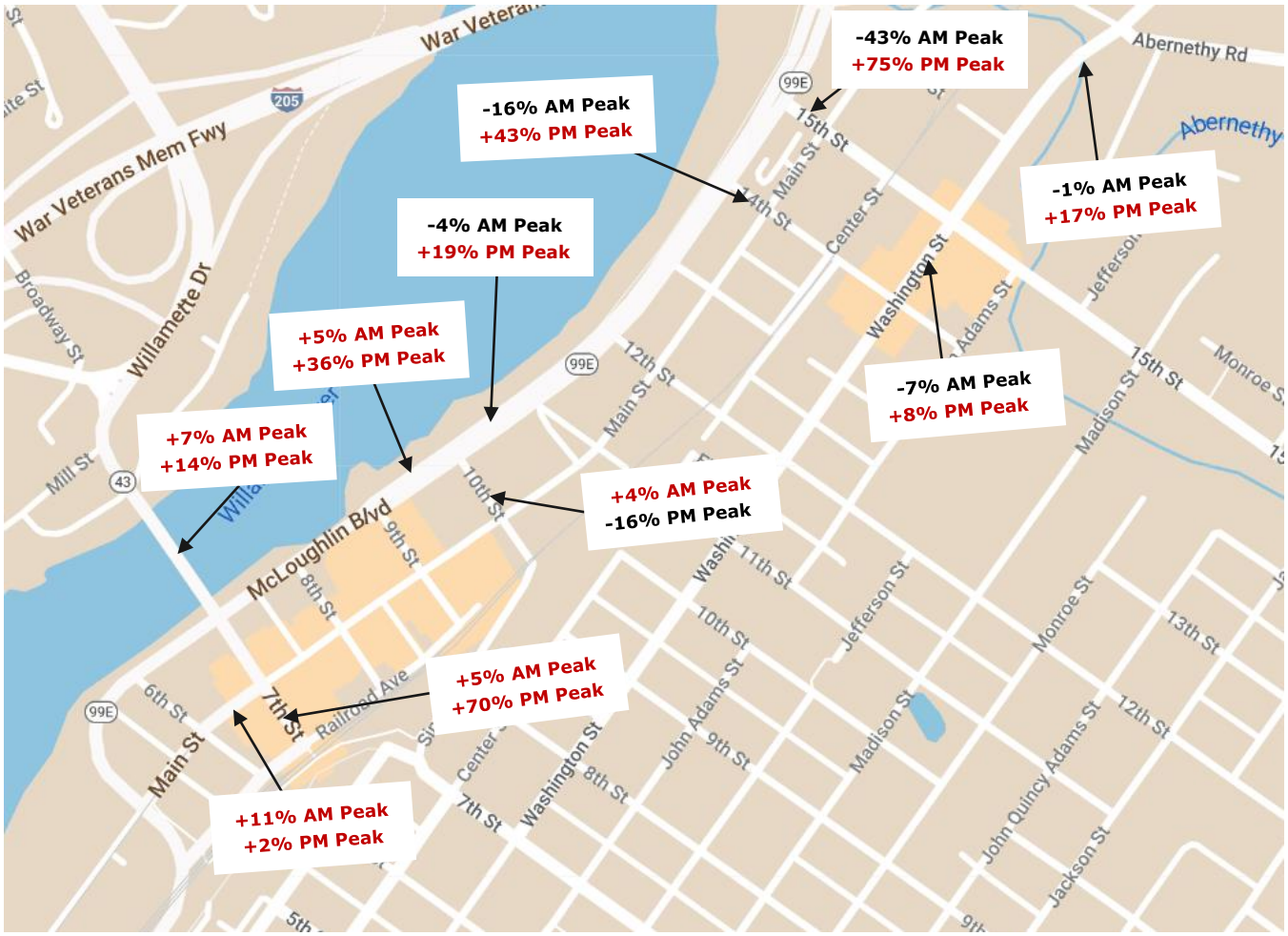
The range and scale of the expected traffic diversion onto Oregon City streets and highways was presented in the I-205 Tolling EA Transportation Technical Report. Significant diversion impacts are expected along OR 99E, across the Arch Bridge (OR 43), along Main Street and its connecting streets to OR 99E, and other major streets connecting to areas at the top of the bluff, such as Singer Hill, Washington Street and S 2nd Street.

2027 TRAFFIC DIVERSION WITH I-205 TOLLING

The I-205 Tolling EA Transportation Technical Report provides traffic volume forecasts with and without tolling operations on OR 99E and OR 213 in Oregon City. We compared the average weekday volumes in the 2027 Pre-Tolling and Build Scenarios to those in the 2027 No-Build Scenario to report the net changes. We found that major tolling diversions are expected along OR 99E through Downtown Oregon City, up to 27 percent higher in the northbound direction and up to 34 percent higher in the southbound direction, while the daily volume increases along OR 213 near Washington Street are more modest, up to 4 percent in the northbound direction and up to 6 percent in the southbound direction.

Figure 2 shows the projected 2027 peak hour volume increases along studied roadway segments in Oregon City with I-205 tolling. As shown, the a.m. peak hour generally has minor changes, less than 10 percent, except for 14th and 15th Street which drops by 16 and 43 percent respectively. During the p.m. peak hour, volume changes are much more significant on many routes, most notably increasing 43 and 75 percent along 14th and 15th Street respectively, and 36 percent along OR 99E south of 10th Street.

FIGURE 2. 2027 PEAK HOUR TRAFFIC VOLUME CHANGES WITH I-205 TOLLING COMPARED TO NO TOLLS



2045 TRAFFIC DIVERSION WITH I-205 TOLLING

Figure 3 shows forecasted changes in daily volumes between the 2045 Build Scenario and the 2045 No-build Scenario. As shown, daily volumes are expected to increase in 2045 from tolling diversion up to 10 percent along OR 99E, up to 50 percent along the Arch Bridge (OR 43), up to 40 percent along streets in Downtown Oregon City, and up to 10 percent along Washington Street and Abernethy Road between Downtown Oregon City and OR 213.

FIGURE 3. 2045 DAILY VOLUME CHANGES WITH I-205 TOLLING COMPARED TO NO TOLLS

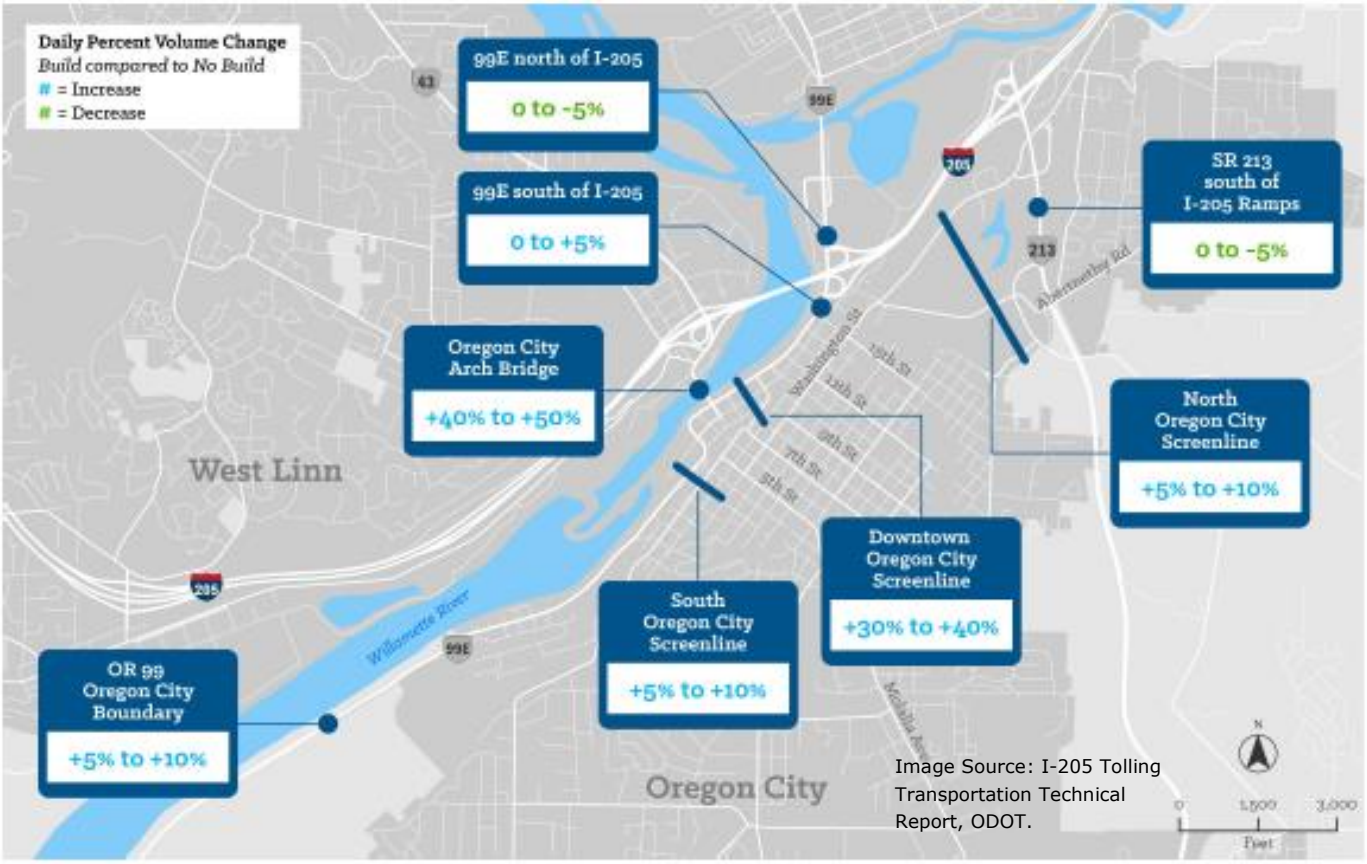
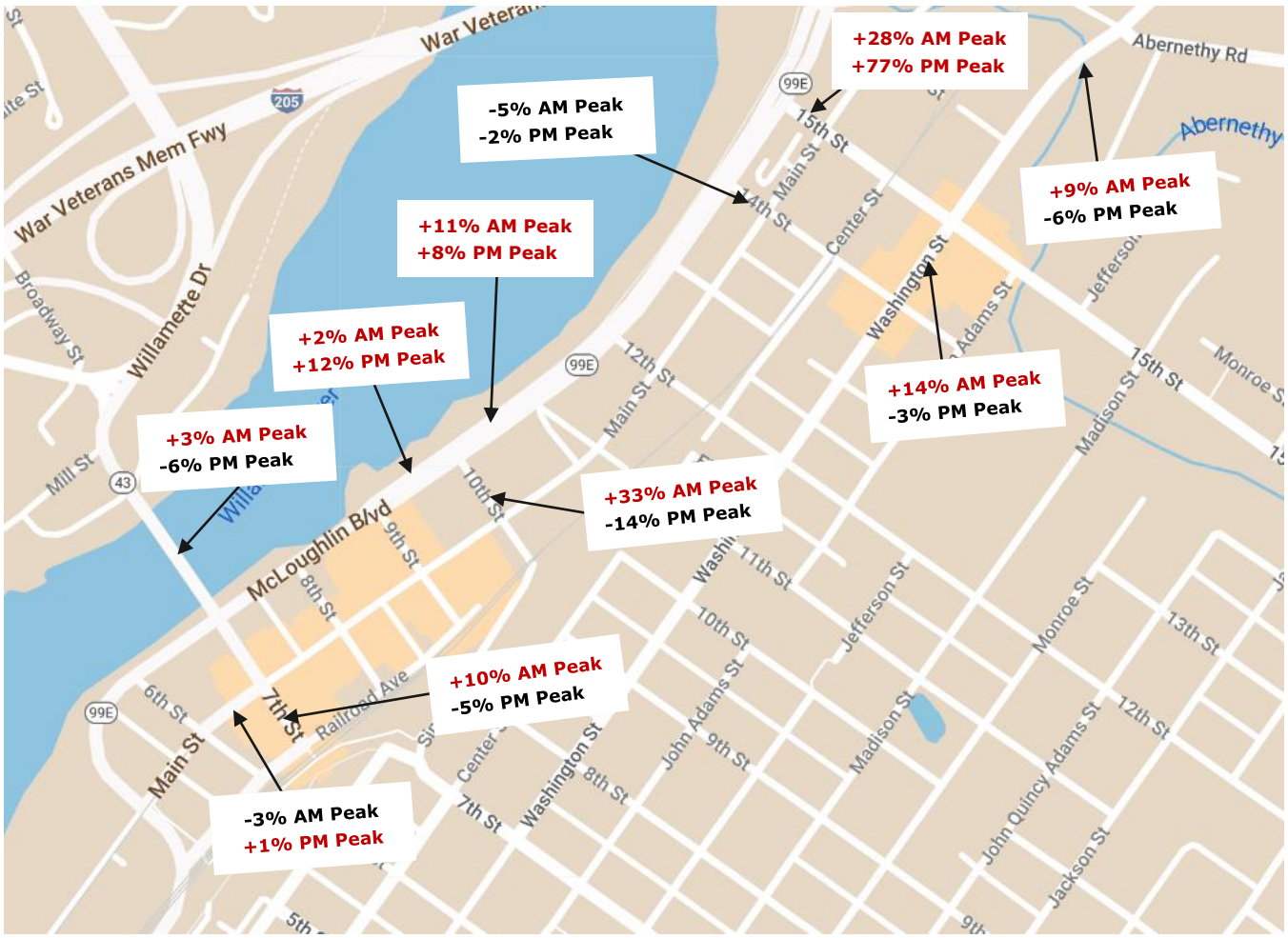


Figure 4 shows the projected 2045 peak hour volume changes with I-205 tolling. The 15th street connection between OR 99E and Main Street shows major increases in both peak hours, while five blocks south at 10th Street, the same connection serves 33 percent higher in the a.m. peak and decreases by 14 percent in the p.m. peak hour. The other changes shown in Figure 4 are relatively minor.

We also compared the relative changes reported for daily volumes (Figure 3) versus the peak hour volumes (Figure 4). The most striking difference is on the Arch Bridge, where a 40 to 50 percent increase is expected daily versus the peak hour totals of 3 to 6 percent, an order of magnitude less. One possible explanation for this outcome is an extension of the duration of severe congestion. The existing conditions analysis, as reported in previous technical reports, showed that the Arch Bridge is operating at or near capacity today. Adding more trips across the bridge due to

toll diversion will increase the number of congested hours on a typical weekday, which increases the daily volume total but not a given peak hour volume total. The system impact of a longer duration of congested peak period should be addressed in the revised EA Technical Report.

FIGURE 4. 2045 PEAK HOUR VOLUME CHANGES WITH I-205 TOLLING COMPARED TO NO TOLLS



Findings for Oregon City:

While the roadway segments and intersections included in the I-205 Tolling EA Report do not reflect the complete picture, they do provide some insight into the projected highway user diversion impact to surface streets in Oregon City, indicating that I-205 tolling will increase daily and peak hour traffic on the Arch Bridge and OR 99E, through Downtown Oregon City along 7th Street, Main Street, Railroad Avenue, 14th Street and 15th Street, and Washington Street. This includes adding more peak hour traffic on critically congested links along OR 99E through the downtown, up to 36 percent more in 2027 and up to 12 percent more in 2045.

Tolling will also significantly increase traffic along Main Street and its connecting streets to OR 99E in Downtown Oregon City, with up to 75 percent more peak hour traffic in 2027 and up to 77 percent more in 2045. It is difficult to assess the impact of these significant peak hour volume increases at intersections along Main Street and other Downtown streets since the I-205 Tolling EA Report only included analysis at the Main Street/ 7th Street intersection.

ROADWAY IMPACTS IDENTIFIED IN THE I-205 TOLLING EA

The forecasted analysis results from the I-205 Tolling EA for the 12 study intersections in Oregon City are shown in Table 1 and Table 2. The 2027 results indicate that four intersections are impacted by the Build Alternative when compared to the No-Build Alternative, including the following:

- 7th St and Main St (ID #18)
- OR 99E and I-205 NB Ramps (ID #19)
- OR 99E and I-205 SB Ramps (ID #20)
- OR 99E and 14th St (ID #41)

The 2045 results indicate that five intersections are impacted by the Build Alternative when compared to the No-Build Alternative, including three intersections that were also impacted in 2027 analysis. The five intersections include the following:

- OR 99E and I-205 NB Ramps (ID #19) – also impacted in the 2027 analysis.
- OR 99E and I-205 SB Ramps (ID #20) – also impacted in the 2027 analysis.
- OR 99E and 15th St (ID #21)
- OR 99E and 10th St (ID #23)
- OR 99E and 14th St (ID #41) – also impacted in the 2027 analysis.

Queuing results were only provided for the 2045 Build scenario. The results show vehicle queues extending from over 950 feet from the Main Street/ 7th Street intersection across the Arch Bridge into West Linn, and nearly 900 feet along Main Street from the 7th Street intersection. Significant queuing is also reported from intersections along OR 99E during the peak hours.

Findings for Oregon City:

Impacts were identified at six of the 12 Oregon City intersections analyzed in the I-205 Tolling EA, including five along OR 99E (at the I-205 NB Ramps, I-205 SB Ramps, 15th St, 14th St, and 10th St intersections), and at the 7th St/ Main St intersection.

Tolling I-205 will cause many highway users to shift their trips to roadways in the City. These trips would result in significant new congestion along roadways and at intersections, and increased delay and travel times for people in the City, particularly along OR 99E and its connecting side streets through the City. Additionally, queue spill back from OR 99E intersections to the adjacent Main Street intersections are major concerns. The I-205 Tolling EA notes that additional traffic in the Build scenario rerouting through Oregon City and across the Arch Bridge "is causing congestion that would back up onto OR 99E and lead to additional delay". These impacts to streets in Downtown Oregon City were not assessed in the I-205 Tolling EA. Queuing results were only provided for the 2045 Build scenario but show significant queuing at the analyzed intersections along OR 99E and at Main Street/7th Street.

TABLE 1: 2027 NO BUILD AND BUILD PEAK HOUR INTERSECTION OPERATIONS

INTERSECTION (ID #)	MOBILITY STANDARD	2027 NO BUILD (AM PEAK)			2027 BUILD (AM PEAK)		
		V/C	DELAY	LOS	V/C	DELAY	LOS
7TH ST AND MAIN ST (ID #18)	v/c 1.1	0.53	11	B	0.56	12	B
OR 99E AND I-205 NB RAMPS (ID #19)	v/c 0.85 (0.75)	**0.92**	**79**	**E**	**0.87**	**64**	**E**
OR 99E AND I-205 SB RAMPS (ID #20)	v/c 0.85 (0.75)	**0.92**	**30**	**C**	**1.17**	**35**	**D**
OR 99E AND 15TH ST (ID #21)	v/c 1.1	1.10	128	F	0.49	27	D
15TH ST AND WASHINGTON ST (ID #22)	LOS D	0.29	21	C	0.29	21	C
OR 99E AND 10TH ST (ID #23)	v/c 1.1	0.85	16	B	0.79	36	D
ABERNETHY RD AND WASHINGTON ST (ID #24)	LOS D	0.42	12	B	0.42	12	B
OR 213 AND I-205 NB RAMPS (ID #28)	v/c 0.85 (0.75)	NR	NR	NR	NR	NR	NR
OR 213 AND I-205 SB RAMPS (ID #29)	v/c 0.85 (0.75)	**>2**	**>300**	**F**	**>2**	**>300**	**F**
OR 213 AND WASHINGTON ST (ID #30)	v/c 0.99	0.75	14	B	0.75	14	B
OR 99E AND DUNES DR (ID #40)	v/c 1.1	0.70	18	B	0.74	22	C
OR 99E AND 14TH ST (ID #41)	v/c 1.1	**1.16**	**40**	**D**	1.08	17	B
INTERSECTION (ID #)	**MOBILITY STANDARD**	**2027 NO BUILD (PM PEAK)**			**2027 BUILD (PM PEAK)**		
		V/C	**DELAY**	**LOS**	**V/C**	**DELAY**	**LOS**
7TH ST AND MAIN ST (ID #18)	v/c 1.1	1.08	90	F	**1.18**	**54**	**D**
OR 99E AND I-205 NB RAMPS (ID #19)	v/c 0.85 (0.75)	**0.91**	**37**	**D**	**1.13**	**38**	**D**
OR 99E AND I-205 SB RAMPS (ID #20)	v/c 0.85 (0.75)	**1.12**	**54**	**D**	**1.42**	**121**	**F**
OR 99E AND 15TH ST (ID #21)	v/c 1.1	1.05	116	F	1.05	116	F
15TH ST AND WASHINGTON ST (ID #22)	LOS D	0.95	31	C	0.59	52	D
OR 99E AND 10TH ST (ID #23)	v/c 1.1	1.00	53	D	1.10	31	C
ABERNETHY RD AND WASHINGTON ST (ID #24)	LOS D	0.50	16	B	0.50	26	C
OR 213 AND I-205 NB RAMPS (ID #28)	v/c 0.85 (0.75)	NR	NR	NR	NR	NR	NR
OR 213 AND I-205 SB RAMPS (ID #29)	v/c 0.85 (0.75)	**>2**	**>300**	**F**	**>2**	**>300**	**F**
OR 213 AND WASHINGTON ST (ID #30)	v/c 0.99	0.90	18	B	0.83	16	B
OR 99E AND DUNES DR (ID #40)	v/c 1.1	0.93	38	D	1.05	56	E
OR 99E AND 14TH ST (ID #41)	v/c 1.1	**1.36**	**46**	**D**	**1.92**	**128**	**F**

TABLE 2: 2045 NO BUILD AND BUILD PEAK HOUR INTERSECTION OPERATIONS

INTERSECTION (ID #)	MOBILITY STANDARD	2045 NO BUILD (AM PEAK)			2045 BUILD (AM PEAK)		
		V/C	DELAY	LOS	V/C	DELAY	LOS
7TH ST AND MAIN ST (ID #18)	v/c 1.1	0.54	11	B	0.56	12	B
OR 99E AND I-205 NB RAMPS (ID #19)	v/c 0.85 (0.75)	**0.89**	**60**	**E**	**0.99**	**85**	**F**
OR 99E AND I-205 SB RAMPS (ID #20)	v/c 0.85 (0.75)	**1.05**	**38**	**D**	**1.07**	**39**	**D**
OR 99E AND 15TH ST (ID #21)	v/c 1.1	1.01	97	F	**1.47**	**269**	**F**
15TH ST AND WASHINGTON ST (ID #22)	LOS D	0.31	22	C	0.30	20	B
OR 99E AND 10TH ST (ID #23)	v/c 1.1	0.74	24	C	0.93	45	D
ABERNETHY RD AND WASHINGTON ST (ID #24)	LOS D	0.42	12	B	0.49	13	B
OR 213 AND I-205 NB RAMPS (ID #28)	v/c 0.85 (0.75)	NR	NR	NR	NR	NR	NR
OR 213 AND I-205 SB RAMPS (ID #29)	v/c 0.85 (0.75)	**>2**	**>300**	**F**	**>2**	**>300**	**F**
OR 213 AND WASHINGTON ST (ID #30)	v/c 0.99	0.75	16	B	0.78	16	B
OR 99E AND DUNES DR (ID #40)	v/c 1.1	0.80	19	B	0.80	20	B
OR 99E AND 14TH ST (ID #41)	v/c 1.1	**1.21**	**33**	**C**	**1.27**	**53**	**D**
INTERSECTION (ID #)	MOBILITY STANDARD	2045 NO BUILD (PM PEAK)			2045 BUILD (PM PEAK)		
		V/C	DELAY	LOS	V/C	DELAY	LOS
7TH ST AND MAIN ST (ID #18)	v/c 1.1	1.02	64	E	0.98	31	C
OR 99E AND I-205 NB RAMPS (ID #19)	v/c 0.85 (0.75)	**1.05**	**56**	**E**	**1.11**	**60**	**E**
OR 99E AND I-205 SB RAMPS (ID #20)	v/c 0.85 (0.75)	**1.32**	**83**	**F**	**1.32**	**80**	**F**
OR 99E AND 15TH ST (ID #21)	v/c 1.1	**1.38**	**252**	**F**	**1.96**	**>300**	**F**
15TH ST AND WASHINGTON ST (ID #22)	LOS D	0.60	38	D	0.65	45	D
OR 99E AND 10TH ST (ID #23)	v/c 1.1	1.09	65	E	**1.16**	**67**	**E**
ABERNETHY RD AND WASHINGTON ST (ID #24)	LOS D	0.58	18	B	0.56	16	B
OR 213 AND I-205 NB RAMPS (ID #28)	v/c 0.85 (0.75)	NR	NR	NR	NR	NR	NR
OR 213 AND I-205 SB RAMPS (ID #29)	v/c 0.85 (0.75)	**>2**	**>300**	**F**	**>2**	**>300**	**F**
OR 213 AND WASHINGTON ST (ID #30)	v/c 0.99	0.95	22	C	0.99	36	D
OR 99E AND DUNES DR (ID #40)	v/c 1.1	1.04	30	C	1.00	53	D
OR 99E AND 14TH ST (ID #41)	v/c 1.1	**1.66**	**87**	**F**	**1.65**	**87**	**F**

Travel times were estimated for the 2045 No-Build and Build Alternatives along three corridors in Oregon City, including across the Arch Bridge from McKillican Street to Main Street, along Main Street from OR 99E to 15th Street, and along OR 99E from W Arlington Street to S 2nd Street.

The results show that the southbound travel times across the Arch Bridge into Oregon City are expected to be longer during the peak hours, increasing over three minutes during the p.m. peak hour in the 2045 Build scenario when compared to the 2045 No-Build scenario. The I-205 Tolling EA notes that backups from greater congestion in Downtown Oregon City are causing these increased travel times across the Arch Bridge.

The results along Main Street in Downtown Oregon City, shown in Figure 5, indicate that travel times are expected to increase in the p.m. peak hour by nearly 8 minutes traveling southbound from 15th Street to OR 99E. The total p.m. peak hour travel time along this approximately one-half mile segment is estimated at nearly 15 minutes in the 2045 Build scenario, up from just under 7 minutes in the 2045 No-Build scenario. The southbound travel times along this same segment are projected to decrease in the a.m. peak hour, from 24 minutes in the 2045 No-Build scenario to 12 minutes in the 2045 Build scenario. The northbound Main Street travel times from OR 99E to 15th Street are estimated to increase by over 2 minutes during both the a.m. and p.m. peak hours, with this trip taking nearly 16 minutes during the a.m. peak hour in the 2045 Build scenario. It is worth noting that a typical trip taken today along this Main Street segment during the peak hour takes around 4 to 6 minutes in either direction, indicating that the estimated travel times in the 2045 Build and even No-Build scenarios are expected to be well above what they are today.

FIGURE 5: 2045 NO BUILD AND BUILD PEAK HOUR TRAVEL TIMES ALONG MAIN STREET

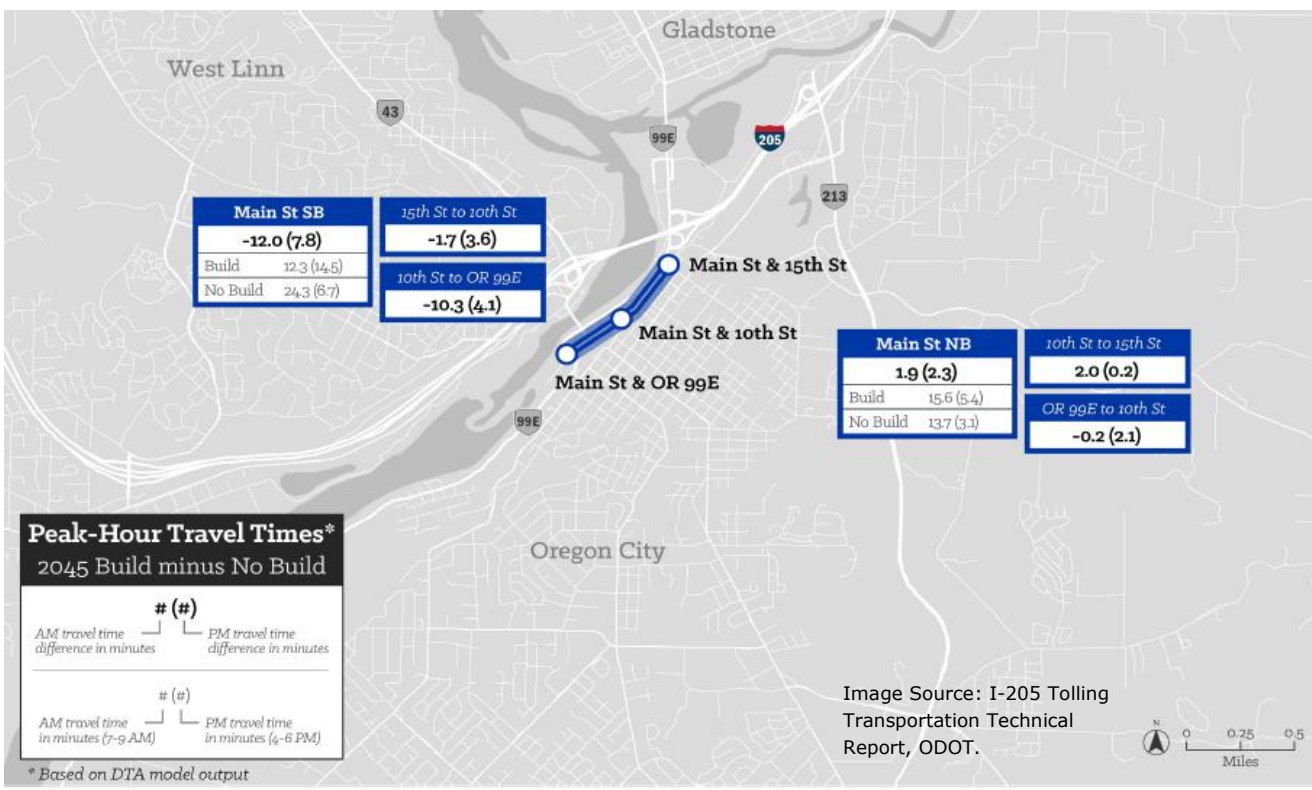
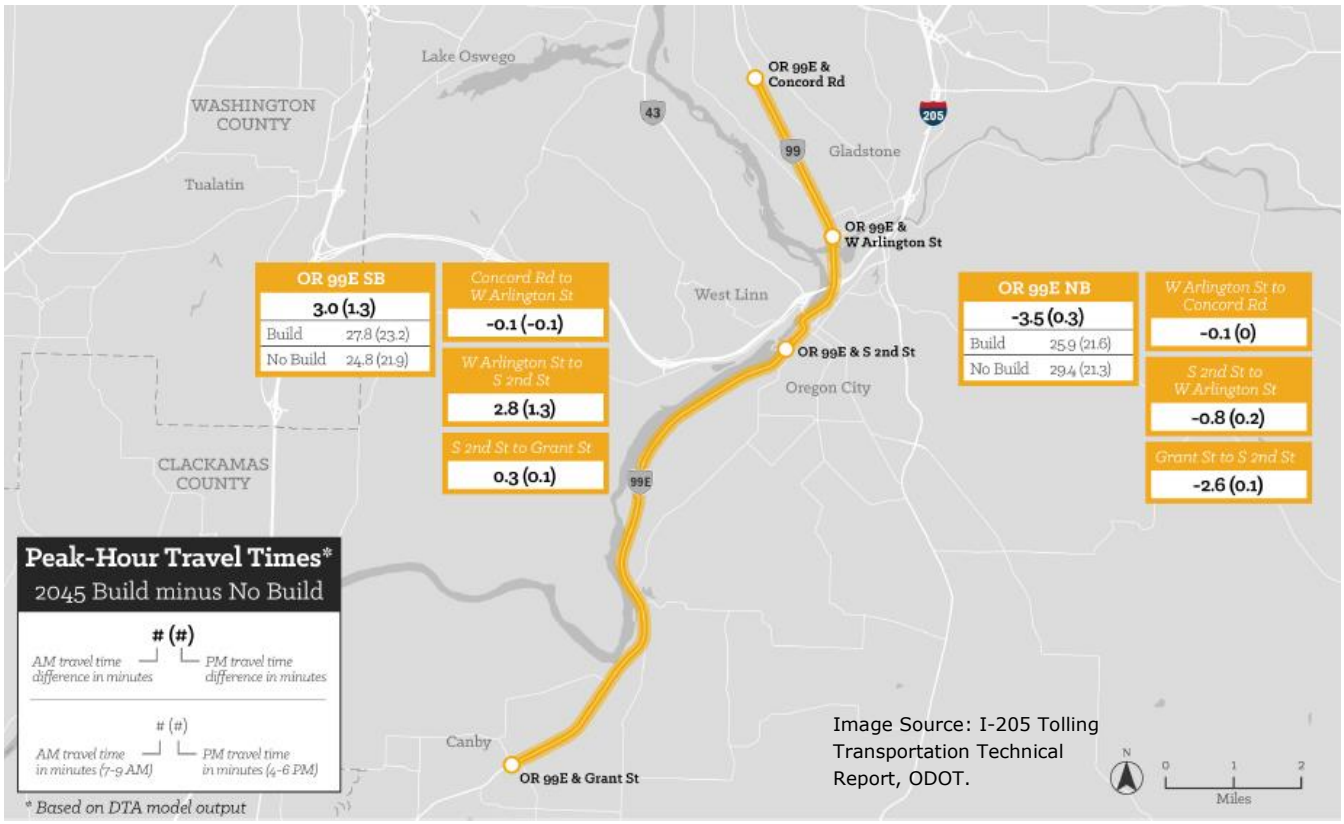


Image Source: I-205 Tolling Transportation Technical Report, ODOT.

A typical trip taken today along the 2-mile OR 99E segment from W Arlington Street to S 2nd Street during the peak hour takes around 5 to 10 minutes in either direction. The 2045 Build scenario is estimated to add up to 3 minutes to the travel time along this segment when compared to the 2045 No-Build scenario, with the travel times in the southbound direction estimated to increase more than those in the northbound direction. While the total estimated corridor travel time reported in the I-205 Tolling EA along OR 99E is reported beyond Oregon City, from Gladstone to Canby, the overall increase in travel time is largely estimated to occur within the segment through Oregon City. The I-205 Tolling EA notes that additional traffic in the Build scenario rerouting through Oregon City and across the Arch Bridge "is causing congestion that would back up onto OR 99E and lead to additional delay".

FIGURE 6: 2045 NO BUILD AND BUILD PEAK HOUR TRAVEL TIMES ALONG OR 99E



TRANSIT IMPACTS IDENTIFIED IN THE I-205 TOLLING EA

Transit travel times were estimated for the 2045 No-Build and Build Alternatives along three corridors in Oregon City, including Main Street from OR 99E to 15th Street, OR 99E from Dune Drive to S 2nd Street, and OR 213 from Beavercreek Road to I-205. The results, shown in Table 3, indicate that transit travel times along Main Street in Downtown Oregon City are expected to increase by over 6 minutes traveling southbound in the p.m. peak from 14th Street to OR 99E and by over 2 minutes traveling northbound in the a.m. peak from 11th Street to 15th Street.

Along OR 99E, transit travel times are expected to increase by nearly 2 minutes traveling northbound in the a.m. peak between Main Street and S 2nd Street and by up to 3 minutes traveling southbound in the a.m. and p.m. peak between 11th Street and Main Street. The increased transit travel times along these OR 99E segments correlate to the decline in the estimated transit multimodal level of service between the 2045 No-Build and Build scenarios, with the former declining from C to D and the later declining from D to E. While transit multimodal level of service was not analyzed along Main Street in the I-205 Tolling EA, a similar decline would likely occur given the increased transit travel times.

Findings for Oregon City:

Transit impacts were identified along four Oregon City roadway segments analyzed in the I-205 Tolling EA, including along OR 99E from 11th Street to Main Street (southbound), OR 99E from Railroad Avenue to MP 12.74 (northbound), Main Street from 11th Street to 15th Street (northbound) and Main Street from 14th Street to OR 99E (southbound). This will impact some existing TriMet routes and the Canby Area Transit 99X route.

It is also unclear if the proposed mitigations were included in the transit travel time assessment for the Build scenario. This is particularly true along OR 99E where intersection operations become significantly worse in the Build scenario when compared to the No-Build scenario, yet no change or even an improvement in transit travel times are projected along most segments.

TABLE 3: 2045 NO BUILD AND BUILD TRANSIT TRAVEL TIMES

CORRIDOR	2045 AM PEAK (7-9 AM) TRAVEL TIME- MINUTES			2045 PM PEAK (4-6 PM) TRAVEL TIME- MINUTES		
	NO BUILD	BUILD	CHANGE	NO BUILD	BUILD	CHANGE
Main Street (Northbound)						
OR 99E TO 10TH ST	11.1	10.9	-0.2	2.0	4.2	**2.2**
10TH ST TO 11TH ST	0.5	0.5	-0.1	0.2	0.2	0.0
11TH ST TO 14TH ST	1.3	2.8	**1.5**	0.6	0.7	0.1
14TH ST TO 15TH ST	0.7	1.3	**0.6**	0.2	0.3	0.1
Main Street (Southbound)						
OR 99E TO 10TH ST	21.2	11.0	-10.2	6.1	9.1	**2.9**
10TH ST TO 11TH ST	1.8	0.3	-1.5	0.7	2.4	**1.7**
11TH ST TO 14TH ST	0.8	0.6	-0.2	0.7	3.0	**2.2**
14TH ST TO 15TH ST	0.5	0.4	-0.1	0.4	0.4	0.0
OR 99E (Northbound)						
DUNES DR TO 15TH ST	2.3	1.6	-0.7	1.2	1.3	0.1

CORRIDOR	2045 AM PEAK (7-9 AM) TRAVEL TIME- MINUTES			2045 PM PEAK (4-6 PM) TRAVEL TIME- MINUTES		
	NO BUILD	BUILD	CHANGE	NO BUILD	BUILD	CHANGE
15TH ST TO 11TH ST	2.5	1.4	-1.1	1.0	0.9	-0.1
11TH ST TO MAIN ST	2.1	1.1	-0.9	1.2	1.2	-0.1
MAIN ST TO MP 12.74	1.9	3.5	**1.7**	0.7	1.0	0.3
MP 12.74 TO S 2ND ST	0.2	0.2	0.0	0.2	0.2	0.0
OR 99E (Southbound)						
DUNES DR TO 15TH ST	1.1	1.2	0.0	1.0	0.9	-0.1
15TH ST TO 11TH ST	0.6	0.6	0.0	0.9	0.9	0.0
11TH ST TO MAIN ST	2.0	5.4	**3.4**	1.5	3.3	**1.8**
MAIN ST TO MP 12.74	0.6	0.6	0.0	0.6	0.6	0.0
MP 12.74 TO S 2ND ST	0.3	0.2	0.0	0.3	0.2	0.0
OR 213 (Beavercreek Rd to I-205)						
NORTHBOUND	7.3	5.9	-1.5	3.5	3.5	0.0
SOUTHBOUND	3.7	3.7	0.0	3.9	3.9	0.0

PEDESTRIAN AND BICYCLE IMPACTS IDENTIFIED IN THE I-205 TOLLING EA

Bicycle level of traffic stress was estimated for the 2045 No-Build and Build Alternatives along three corridors in Oregon City, including OR 43 across the Arch Bridge, OR 99E, and OR 213. The results indicate moderate stress for bicyclists across the Arch Bridge (Bike Level of Traffic Stress 3), high stress for bicyclists along OR 213 (Bike Level of Traffic Stress 4), and stress levels ranging from low to high along OR 99E (Bike Level of Traffic Stress 1 to 4). The results also indicate no change in the expected level of stress for bicyclists along each of these corridors between the 2045 No-Build and Build scenarios, although the analysis assumes future planned projects along segments of OR 99E that would add bicycle facilities and bring those segments to Bike Level of Traffic Stress 1. Bicycle level of traffic stress was not analyzed along Main Street or at any of its intersections in the I-205 Tolling EA, although bicyclist will likely experience increased stress levels along it given the significant increase in traffic expected in Downtown Oregon City in the Build scenarios when compared to the No-Build.

A pedestrian corridor multimodal level of service analysis was also completed for the 2045 No-Build and Build Alternatives along the same corridors in Oregon City as the bicycle level of stress analysis, including OR 43 across the Arch Bridge, OR 99E, and OR 213. The results indicate a pedestrian level of service B across the Arch Bridge, pedestrian level of service E and F along OR 213, and ranging from C to F along OR 99E. Again, the results indicate no change in the expected pedestrian level of service along most of these corridors between the 2045 No-Build and Build scenarios, with the exception of the southbound segment of OR 99E from 11th Street to Main

Street, which will worsen from pedestrian level of service C to E under Build conditions. Again, pedestrian analysis was not analyzed along Main Street or at any of its intersections in the I-205 Tolling EA, although pedestrians will likely experience increased stress levels, particularly at intersections, given the significant increase in traffic expected in Downtown Oregon City in the Build scenarios when compared to the No-Build.

Findings for Oregon City:

No bicycle impacts were identified in Oregon City in the I-205 Tolling EA, although several of the analyzed roadway segments include high levels of traffic stress for bicyclists in both the 2045 No-Build and Build scenarios. The analysis assumes completion of a planned shared-use path adjacent to southbound OR 99E between 10th Street to the Canemah neighborhood, which reduces the stress levels for bicyclists to low (Bike Level of Traffic Stress 1). OR 99E lacks bike facilities through much of Oregon City, with the only facility being a street adjacent multiuse path north of 14th Street. The bikeway gap along OR 99E south of this intersection is one of the most critical in the City, with high levels of traffic stress experienced by these users. The increased traffic along OR 99E with the Build scenario will further exacerbate the high bicycle level of traffic stress along this corridor and could deter people from biking.

A pedestrian impact was identified in the I-205 Tolling EA for the southbound segment of OR 99E from 11th Street to Main Street, which will worsen from pedestrian level of service C in No-Build conditions to E under Build conditions. Again, the analysis assumes completion of a planned shared-use path adjacent to southbound OR 99E to improve the pedestrian level of service, but only between Main Street and the Canemah neighborhood (the bike analysis also assumed the shared-use path between 10th Street and Main Street). Without the planned improvement, the southbound OR 99E segment between Main Street and the Canemah neighborhood would likely see a similar pedestrian impact as the segment between 11th Street to Main Street. Existing sidewalks along OR 99E are narrow and often directly adjacent to the travel lane, with no buffer provided. Additionally, segments of OR 99E exist with no sidewalk coverage. Adding additional traffic with the Build scenario to these already heavily traveled lanes, coupled with the high travel speeds, will negatively impact those walking along OR 99E and between the nearby neighborhoods. This will lead to uncomfortable walking conditions and a high level of stress, and difficult street crossings for some of the most vulnerable users in the City.

Although not analyzed in the I-205 Tolling EA, additional streets in the City could see increases in the level of traffic stress experienced for bicyclists and worsening pedestrian level of service as the level of traffic increases in the Build scenario, especially along Main Street and other streets in Downtown Oregon City.

TRUCK FREIGHT IMPACTS IDENTIFIED IN THE I-205 TOLLING EA

The I-205 Tolling EA does not include a metric for identifying an impact to truck freight. Freight corridor travel times were estimated for the 2045 No-Build and Build Alternatives along OR 99E through Oregon City. The results, shown in Table 4, indicate that freight corridor travel times along OR 99E during the peak period are expected to increase up to 31 percent in the southbound direction (or nearly 3 minutes) and up to four percent in the southbound direction (or less than 30 seconds).

Findings for Oregon City:

The I-205 Tolling EA does not include a metric for identifying an impact to truck freight. The added vehicle traffic along OR 99E under the Build scenario will lead to increased freight corridor travel times during the peak periods of up to 3 minutes through Oregon City. Additionally, the added traffic in Downtown Oregon City will make it more difficult to access area businesses and will affect how local businesses conduct their day-to-day operations.

TABLE 4: 2045 NO BUILD AND BUILD FREIGHT CORRIDOR TRAVEL TIMES

CORRIDOR	2045 AM PEAK (7-9 AM) TRAVEL TIME- MINUTES			2045 PM PEAK (4-6 PM) TRAVEL TIME- MINUTES		
	NO BUILD	BUILD	CHANGE	NO BUILD	BUILD	CHANGE
OR 99E NORTHBOUND (FROM S 2ND ST TO W ARLINGTON ST)	10.7	9.9	-0.8 (-7%)	5.3	5.5	0.2 (+4%)
OR 99E SOUTHBOUND (FROM W ARLINGTON ST TO S 2ND ST)	8.9	11.7	2.8 (+31%)	6.1	7.4	1.3 (+21%)

TRANSPORTATION SAFETY IMPACTS IDENTIFIED IN THE I-205 TOLLING EA

A transportation safety impact was identified along the OR 99E segment from W Arlington Street to Main Street through Oregon City. This segment is estimated in the I-205 Tolling EA to see an increase in the predicted number of fatality/severe injury crashes per year in the Build scenario when compared to the No-Build scenario.

Although not characterized as a transportation safety impact in the I-205 Tolling EA, the increased traffic along streets in the City will have additional negative impacts on the safety of all transportation users. Peak-hour traffic volumes affect the safety of residents walking and biking between neighborhoods and those attempting to cross streets. The higher traffic volumes and increased congestion is estimated in the I-205 Tolling EA to lead to an increase in the predictive number of crashes at intersections and roadway segments in Oregon City. They also create an

increase in the predicted number of pedestrian and bicycle collisions in the I-205 Tolling EA with more potential conflicts between people walking and biking and those driving in the City.

Additionally, vehicle queues from OR 99E intersections extending back to the adjacent Main Street intersections will negatively impact the safety of users attempting to cross these intersections.

Findings for Oregon City:

A transportation safety impact was identified along the OR 99E segment from W Arlington Street to Main Street through Oregon City.

Although not characterized as a transportation safety impact in the I-205 Tolling EA, the increased traffic along streets in the City will have additional negative impacts on the safety of all transportation users, including vehicle queues from OR 99E intersections extending back to the adjacent Main Street intersections negatively impacting the safety of users attempting to cross these intersections.

MITIGATIONS FOR IMPACTS IDENTIFIED IN THE I-205 TOLLING EA

The following sections provide a summary of the mitigations recommended in the I-205 Tolling EA to address the Build scenario impacts identified in Oregon City. These identified impacts are summarized below:

- Roadway impacts were identified at six intersections, including:
  - 7th St/ Main St
  - OR 99E at the I-205 SB Ramps
  - OR 99E at the I-205 NB Ramps
  - OR 99E at 15th St
  - OR 99E at 14th St
  - OR 99E at 10th St
- Transit impacts were identified along four Oregon City roadway segments, including:
  - OR 99E from 11th Street to Main Street (southbound)
  - OR 99E from Railroad Avenue to MP 12.74 (northbound)
  - Main Street from 11th Street to 15th Street (northbound)
  - Main Street from 14th Street to OR 99E (southbound)
- A pedestrian impact was identified for the southbound segment of OR 99E from 11th Street to Main Street.
- A transportation safety impact was identified along the OR 99E segment from W Arlington Street to Main Street through Oregon City.

Figure 7 summarizes the proposed mitigations in Oregon City for these identified impacts.

FIGURE 7: PROPOSED MITIGATIONS IN OREGON CITY FOR IMPACTS IDENTIFIED IN THE I-205 TOLLING EA

OR 99E OREGON CITY

- **Ramp Meter Transit Bypass Lane:** SB on-ramp
- **Convert to One-way:** 15th St from Main St to OR 99E
- **Sidewalk Widening:** OR 99E SB between 10th St and Main St
- **Safety Improvements**
- **Proposed New Traffic Signal** *(pending signal warrant)*
- **Transit Signal Priority** *(pending agreement on technology)*
- **Queue Bypass and Advance Green Signal for Transit**
- **Bike/Ped Improvements:** improve access from bike lane to sidewalk across Clackamas River Bridge

Intersection Improvements

OR 99E/I-205 NB Ramps
- Add Second left-turn lane to off-ramp
- Add second SB left-turn lane to on-ramp
- Add second NB right-turn lane to on-ramp
- Widen on-ramp to 2 receiving lanes, which taper down to 1

OR 99E/14th St
- Prohibit WB left-turns
- Begin 3rd NB lane on OR 99E

OR 99E/10th St
- Extend SB left-turn lane to 12th St

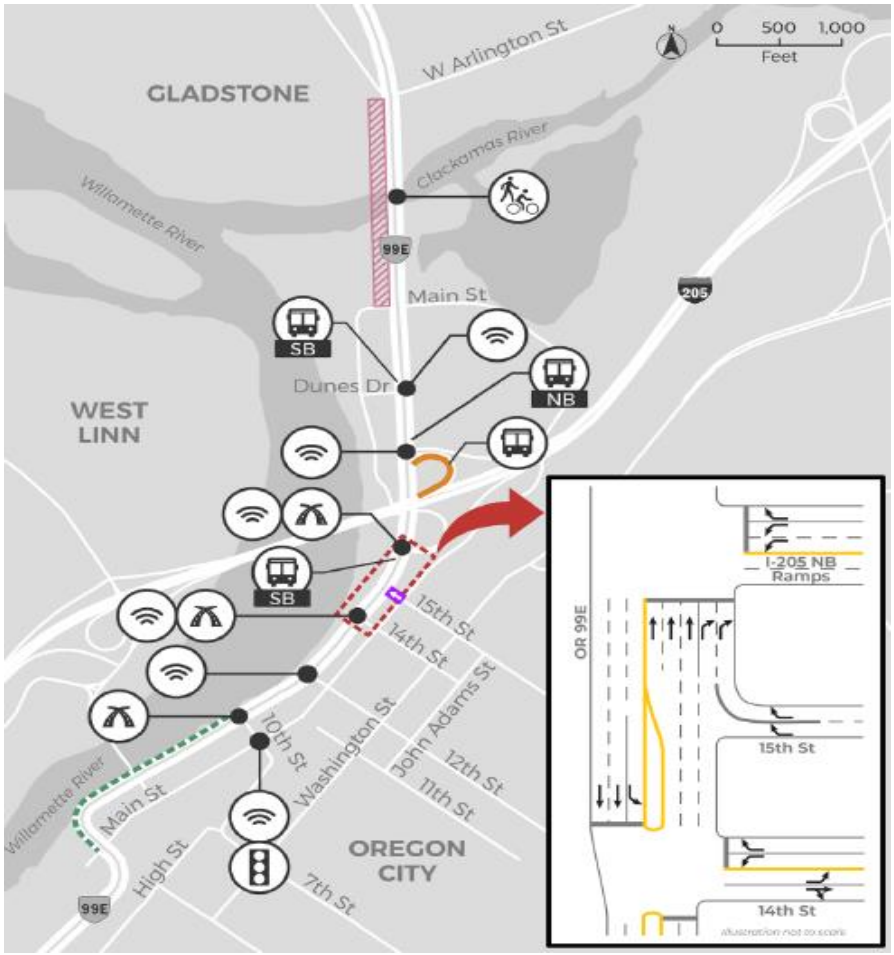


Image Source: I-205 Tolling Transportation Technical Report, ODOT.

7TH ST AND MAIN ST (ID #18)

The 7th Street/ Main Street intersection is projected to see significant increases in daily and peak hour traffic in the 2027 Build Scenario compared to the No-Build scenario, both along Main Street and the Arch Bridge/7th Street. The increased traffic causes the intersection to exceed the mobility standard in the peak hour of the 2027 Build scenario. Additionally, transit travel times along Main Street are impacted by the increased traffic. No mitigation is recommended in the I-205 Tolling EA at this intersection (see Table 5), outside of a note to implement pedestrian improvements along OR 99E. The intersection also includes a note stating, "Due to uncertainty regarding the projected traffic volumes, ODOT proposes to monitor this location and only implement the proposed mitigation if the actual conditions warrant it."

TABLE 5: PROPOSED MITIGATIONS AT 7TH ST/ MAIN ST INTERSECTION IN THE I-205 TOLLING EA

MITIGATION TYPE	IMPACTS IDENTIFIED IN THE I-205 TOLLING EA	PROPOSED MITIGATION IN THE I-205 TOLLING EA
ROADWAY	Intersection operations exceed the mobility standard	None
TRANSIT	Increased transit travel times	None
PEDESTRIAN	Not analyzed	Implement pedestrian improvements, as noted for OR 99E from 10th St to Railroad Ave, to improve overall mobility in the area.
BICYCLE	Not analyzed	
TRANSPORTATION SAFETY	None	None

Findings for Oregon City:

While the OR 99E improvements are supported by Oregon City to help mitigate identified Build scenario impacts along that roadway segment, it does not adequately address the impacts at this intersection and along this segment of Main Street. The distribution of the added Build scenario traffic through Downtown Oregon City streets is unclear given the lack of intersection analysis in the I-205 Tolling EA beyond the three adjacent highway intersections and 7th Street/ Main Street intersection. Peak hour volume data from those intersections indicate significant increases are expected with the Build scenarios and the impact that is projected to have along adjacent roadway segments and at intersections is not documented in the I-205 Tolling EA. Many of these streets in Downtown Oregon City are narrow with on-street parking, and the impact of adding up to 70 percent more peak trips to some of these segments should be studied.

Additionally, the note to monitor the intersection is unclear, and any process recommended in the I-205 Tolling EA for identifying and implementing an unknown mitigation should be clarified.

OR 99E AND I-205 SB RAMPS (ID #20)

The OR 99E/ I-205 SB Ramps intersection is projected to exceed the mobility standard in the peak hours of both the 2027 and 2045 No-Build scenarios and this mobility standard exceedance is expected to worsen under the Build scenarios. Additionally, this segment of OR 99E is estimated to see an increase in the predicted number of fatality/severe injury crashes per year due to the increased traffic. No mitigation is recommended in the I-205 Tolling EA at this intersection for the identified roadway impact as shown in Table 6, outside of some transit enhancements.

TABLE 6: PROPOSED MITIGATIONS AT OR 99E/ I-205 SB RAMPS INTERSECTION IN THE I-205 TOLLING EA

MITIGATION TYPE	IMPACTS IDENTIFIED IN THE I-205 TOLLING EA	PROPOSED MITIGATION IN THE I-205 TOLLING EA
ROADWAY	Intersection operations exceed the mobility standard	None
TRANSIT	None	Transit signal priority; Provide northbound bus pocket at intersection and implement advance green light; Provide transit lane bypass of on-ramp meter on southbound on-ramp.
PEDESTRIAN	None	None
BICYCLE	None	None
TRANSPORTATION SAFETY	Increase in predicted number of fatality/severe injury crashes per year	Add 3-inch yellow reflective sheeting to signal backplates.

Findings for Oregon City:

No mitigation is recommended in the I-205 Tolling EA at this intersection for the identified roadway impact, outside of transit enhancements. It is also unclear how travel time improvements were identified along this segment when peak hour congestion at this intersection is expected to significantly increase the Build scenarios and reported 95th percentile queues exceeding the available storage in the 2045 Build scenario, yet no improvements were identified for the roadway impact at the intersection.

OR 99E AND I-205 NB RAMPS (ID #19)

The OR 99E/ I-205 NB Ramps intersection is projected to exceed the mobility standard in the peak hours of both the 2027 and 2045 No-Build scenarios and this mobility standard exceedance is expected to worsen under the Build scenarios. Additionally, this segment of OR 99E is estimated to see an increase in the predicted number of fatality/severe injury crashes per year due to the increased traffic. Recommended mitigations are shown in Table 7 and include widening to provide a second turn lane for the southbound left, westbound left and northbound right movements, in addition some transit and safety enhancements.

TABLE 7: PROPOSED MITIGATIONS AT OR 99E/ I-205 NB RAMPS INTERSECTION IN THE I-205 TOLLING EA

MITIGATION TYPE	IMPACTS IDENTIFIED IN THE I-205 TOLLING EA	PROPOSED MITIGATION IN THE I-205 TOLLING EA
ROADWAY	Intersection operations exceed the mobility standard	Provide southbound dual left-turn lanes; westbound dual left-turn lanes; northbound dual right-turn lanes (starting at 15th St).
TRANSIT	None	Transit signal priority, advance green for southbound transit.
PEDESTRIAN	None	None
BICYCLE	None	None
TRANSPORTATION SAFETY	Increase in predicted number of fatality/severe injury crashes per year	Add 3-inch yellow reflective sheeting to signal backplates.

Findings for Oregon City:

It is unclear how the proposed mitigations at this intersection impact operations since mitigated results were not reported in the I-205 Tolling EA or provided in the appendices. The reported results for the peak hours of the Build scenarios show significant congestion and 95th percentile queues exceeding the available storage. Pedestrian travel across the east leg of the intersection will also be significantly impacted by the added crossing width, and dual right-turn lanes with an overlap phase.

OR 99E AND 15TH ST (ID #21)

The OR 99E/ 15th Street intersection is projected to exceed the mobility standard in the peak hours of both the 2045 Build scenario. Additionally, this segment of OR 99E is estimated to see an increase in the predicted number of fatality/severe injury crashes per year due to the increased traffic. Recommended mitigations shown in Table 8 include making 15th Street one-way westbound between Main St and OR 99E and creating a second westbound right-turn lane and widening OR 99E to include a fourth northbound lane through the intersection.

Findings for Oregon City:

It is unclear how the proposed mitigations at this intersection impact operations since mitigated results were not reported in the I-205 Tolling EA or provided in the appendices. The reported results for the peak hours of the Build scenarios show significant congestion and 95th percentile queues exceeding the available storage and extending to the nearby Main Street intersection.

Sight distance issues have also been previously identified at this intersection for the westbound approach to the intersection given grade changes, and adding a second westbound right-turn lane may enhance that deficiency. A pedestrian refuge island is also proposed between the two right-turn lanes on 15th Street with a rectangular rapid-flashing beacon (RRFB). The I-205 Tolling EA does not make note of it, but previous discussions have suggested making the northern-most right-turn lane on 15th Street a free movement onto OR 99E. This might create a confusing crossing for pedestrians, and it is unclear how the configuration might impact bike travel through the intersection.

TABLE 8: PROPOSED MITIGATIONS AT OR 99E/ 15TH ST INTERSECTION IN THE I-205 TOLLING EA

MITIGATION TYPE	IMPACTS IDENTIFIED IN THE I-205 TOLLING EA	PROPOSED MITIGATION IN THE I-205 TOLLING EA
ROADWAY	Intersection operations exceed the mobility standard	Convert 15th St to one-way westbound between Main St and OR 99E; start a fourth northbound lane on OR 99E north of 15th St that becomes the second northbound right-turn lane at the intersection of OR 99E and I-205 northbound ramps.
TRANSIT	None	None
PEDESTRIAN	None	Provide pedestrian refuge island between the 2 right-turn lanes on 15th St, include RRFB for pedestrian crossing safety.
BICYCLE	None	None
TRANSPORTATION SAFETY	Increase in predicted number of fatality/severe injury crashes per year	None

OR 99E AND 14TH AVE (ID #41)

The OR 99E/ 14th Street intersection is projected to exceed the mobility standard in the peak hours of both the 2027 and 2045 No-Build scenarios and this mobility standard exceedance is expected to worsen under the Build scenarios. Additionally, this segment of OR 99E is estimated to see an increase in the predicted number of fatality/severe injury crashes per year due to the increased traffic. No mitigation is recommended in the I-205 Tolling EA at this intersection for the identified roadway or transportation safety impact as shown in Table 9, outside of some transit enhancements.

Findings for Oregon City:

No mitigation is recommended in the I-205 Tolling EA at this intersection for the identified roadway or transportation safety impact, outside of transit enhancements. The reported results for the peak hours of the Build scenarios show significant congestion and 95th percentile queues exceeding the available storage and extending to the nearby Main Street intersection.

The image from the I-205 Tolling EA includes text that suggests prohibiting the westbound left-turn at this intersection (see Figure 7), although the corresponding image still includes it. The removal of this movement would impact the movement of trucks and will have a greater impact on travel patterns through Downtown Oregon City. This recommendation should be clarified, and regardless it is not supported by Oregon City without further analysis demonstrating potential impacts to these adjacent streets and intersections.

TABLE 9: PROPOSED MITIGATIONS AT OR 99E/ 14TH ST INTERSECTION IN THE I-205 TOLLING EA

MITIGATION TYPE	IMPACTS IDENTIFIED IN THE I-205 TOLLING EA	PROPOSED MITIGATION IN THE I-205 TOLLING EA
ROADWAY	Intersection operations exceed the mobility standard	None
TRANSIT	None	Transit signal priority.
PEDESTRIAN	None	None
BICYCLE	None	None
TRANSPORTATION SAFETY	Increase in predicted number of fatality/severe injury crashes per year	None

OR 99E AND 10TH ST (ID #23)

The OR 99E/ 10th Street intersection is projected to exceed the mobility standard in the p.m. peak hour of the 2045 Build scenario. Additionally, this segment of OR 99E is expected to see a decline in pedestrian level of service, and an increase in the predicted number of fatality/severe injury crashes per year due to the increased traffic. Recommended mitigations include extending the southbound turn lane onto 10th Street and enhancing the sidewalk on the north side of OR 99E west of this intersection. The intersection also includes a note stating, "monitor to assess the effects of the improvement over time and determine if additional long-term mitigation would be required."

Findings for Oregon City:

The recommended improvements do not appear to adequately address the roadway impact at the intersection as the mitigated results were not reported in the I-205 Tolling EA or provided in the appendices. The reported results show significant congestion and 95th percentile queues exceeding the available storage and extending to the nearby Main Street intersection and the proposed mitigations would not be expected to mitigate those conditions. I-205 Tolling EA also includes a recommended project to add a traffic signal at the nearby Main Street/10th Street intersection, but it is pending completion of additional analysis since it was not analyzed.

Additionally, the note to monitor the intersection is unclear, and any process recommended in the I-205 Tolling EA for identifying and implementing an unknown mitigation should be clarified.

The I-205 Tolling EA includes a note to "Coordinate with the City of Oregon City to implement the OR 99E Bike and Pedestrian Improvements Project, which would improve active transportation facilities on the southbound side of OR 99E." The OR 99E pedestrian improvements are supported by Oregon City to help mitigate identified Build scenario pedestrian and safety impacts along the deficient roadway segment, but the intent of this note should be clarified. It is also unclear why the analysis assumes completion of a planned shared-use path adjacent to southbound OR 99E to improve the pedestrian level of service along the segment between Main Street and the Canemah neighborhood, while the bike analysis assumes completion of the same shared-use path between 10th Street and Main Street. While the improvement is supported by Oregon City, without its assumed completion additional impacts may have been identified given the expected traffic growth under the Build scenarios and the lack of existing pedestrian and bicycle facilities along that segment.

TABLE 10: PROPOSED MITIGATIONS AT OR 99E/ 10TH ST INTERSECTION IN THE I-205 TOLLING EA

MITIGATION TYPE	IMPACTS IDENTIFIED IN THE I-205 TOLLING EA	PROPOSED MITIGATION IN THE I-205 TOLLING EA
ROADWAY	Intersection operations exceed the mobility standard	Extend southbound left-turn lane to 12th St; monitor to assess the effects of the improvement over time and determine if additional long-term mitigation would be required.
TRANSIT	None	None
PEDESTRIAN	Decline in pedestrian level of service	Widen/Improve southbound sidewalk on OR 99E between 10th Street and Railroad Avenue
BICYCLE	None	None
TRANSPORTATION SAFETY	Increase in predicted number of fatality/severe injury crashes per year	Sidewalk improvements between 10th St and Railroad Ave are expected to improve pedestrian safety.